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Twentieth Anniversary

Spring, 1951, marks the twentieth anniversary of *THE SIGHT-SAVING REVIEW*, hopefully begun in the spring of 1931 to serve the wide range of professions and workers concerned with sight conservation. How well this aim has been achieved may be judged by the present subscription list, which includes key representatives from the fields of education, industry, medicine and public health, nursing, optometry and social service.

Each year brings new readers. In 1950 alone approximately 400 became regular subscribers to *THE REVIEW*. The quarterly goes to all 48 states and the District of Columbia, to the Territories of Hawaii and Alaska, and to 30 foreign countries in Europe, Asia, Africa, South America and Australia. That some 30 per cent of the subscribers are universities, medical and nursing schools and specialized professional libraries shows that *THE SIGHT-SAVING REVIEW* reaches many more readers than is indicated by the actual number of subscribers.

In format as in content the aim has been clarity. From the beginning, the typography and makeup of the magazine have been based on the most authoritative information as to size and legibility of type, quality of paper and layout.

It is important for the educator to understand something of the problems of the medical profession and for the physician to understand the problems of the school administrator. Therefore, *THE REVIEW* has sought to be a nontechnical journal that would be easily understood by all the professions subscribing to it. Throughout, it has been fortunate in the support and counsel of a Board of Editors composed of leaders in various fields concerned with sight conservation. The policy of rotating the Board has served to introduce new ideas and fresh points of view.

Gratifying recognition has come to *THE REVIEW* from American and foreign newspapers and scientific periodicals. Its articles have frequently been quoted, reprinted in full, or digested in scores of journals here and abroad.

Since its conception, responsibility for *THE REVIEW* has been in the able hands of Miss Isobel Janowich, Editor, who joined our staff in 1924. To her efforts and devotion throughout the years is due the recognition which *THE REVIEW* has earned.

The National Society for the Prevention of Blindness rededicates *THE REVIEW* on the threshold of its third decade to the task of bringing both information and inspiration to all who work to preserve sight. May the next decade record even greater strides in the battle against blindness!

MASON H. BIGELOW
President

Eye Problems in Present-Day Alaska

Milo H. Fritz, M.D.

Consultant in Ophthalmology and Otolaryngology, Alaska Department of Health *
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DESCRIBES special problems of eye care and the urgent need for ophthalmologists in Alaska.

THE population of the Territory of Alaska, according to the most recent census, is 128,000 individuals. Of these, 70,000 are native Alaskans and the remainder are, generally speaking, white people of Northern European stock.

The most numerous of the native groups is the Eskimo, who inhabits the shores of the Bering Sea and the Arctic Ocean in western and northern Alaska. Next most numerous is the Indian group, inhabiting southeastern Alaska though found in lesser number along the Copper River Valley. The smallest native ethnic group is the Aleut population occupying settlements on the Alaskan peninsula and on some of the more eastward of the Aleutian Islands.

Physiography Presents Difficulties

The largest center of white population is in the Anchorage area where some 32,000 individuals reside. Next

* The opinions expressed in the text are those of the author and do not necessarily reflect the policy of any governmental agency mentioned.

most populous is the region around Fairbanks, some 387 miles north of Anchorage. These two cities have enjoyed the greatest population increase of any portion of Alaska in the past ten years. Juneau and Ketchikan, in southeastern Alaska, have white populations of about 7,000 persons each and the remainder of the white people are found in the smaller cities of Cordova, Valdez, Seward, Kodiak and Nome.

The ophthalmological difficulties among the people in the white centers of population are those similarly to be met with in any small city in the north central or northeastern parts of the United States. Though extremes of temperature are to be met in the Fairbanks area, the temperatures of the other cities where the white population is predominant are no more severe than that found, for instance, in northern Minnesota. It is not felt that temperature has any influence on the ophthalmological picture in Alaska. The main difficulty in this field in all

cities is the lack of anything resembling adequate ophthalmological care.

It is impossible for one well-trained ophthalmologist, no matter how ambitious, to meet successfully the problems posed by 128,000 souls thinly scattered over an area twice the size of Texas. The nearest medical center where there is an adequacy of ophthalmological care is Seattle, and when one considers the cost of round trip by air, the cost of hospitalization, surgical or medical ophthalmological care, plus the time lost away from business and the expense of hotel facilities during the convalescent period, one can see why the main problems in ophthalmology met among the white population are engendered by neglect.

Medical Population

The medical population of the Territory consists chiefly of general practitioners. At the present time the certified specialists are very few in number. There are two certified specialists in orthopedic surgery, one in psychiatry and one who is certified by the American Boards of Ophthalmology and Otolaryngology. Therefore almost all acute eye problems are first seen by the general practitioner and for the most part these overworked individuals do an excellent job in caring for these patients. However, glaucoma is almost never recognized and the early correction of the deviations of visual axes is largely overlooked.

Industrial ophthalmology is in a highly primitive state of development. Eye correction and eye protection programs depend entirely on the efforts of individual shop owners, foremen and the like. Vision testing is almost entirely in the competent

hands of nurses of the Alaska Department of Health, who make an attempt to test the visual acuity of children from the kindergarten onward by means of the Snellen chart.

Eyesight of School Children

Shortly after the beginning of the school year the Commissioner of Health for Alaska receives a large number of requests for an ophthalmologist to visit the various towns where the visual condition of the children has been checked by the nurses. Of course, in these predominantly white settlements the greatest problem is that of refraction. Next most frequent is the need for corrective surgery of the various tropias. Next most frequent is the eradication of such common diseases as blepharitis, the transplantations of pterygiums and the removal of chalazions.

With only one ophthalmologist in the Territory who, in addition to trying to serve the Anchorage population, is also the consultant in ophthalmology of the Alaska Department of Health, and has other duties as well, it is quite obvious that very large segments of the white population are suffering from ophthalmological neglect. The consultant is only too well aware of his own inadequacies in coping with a problem of this magnitude, and has tried to secure better care for the population of the Territory through the enlistment of competent help from the United States.

Residency Program

A residency program, with the blessing of the American Board of Ophthalmology, was set up. Dr. A. W. Vogel, who had completed his first

year in ophthalmology and otolaryngology at Duke University, spent six months in the Territory from July 1 to December 31, 1949. This young man visited and worked in ten settlements from Point Barrow to Sitka and as far west as Nome. He did 729 eye examinations, prescribed 218 pairs of spectacles, and completed 579 ear, nose and throat examinations. He found 53 actively draining ears, and 174 ears showing prior damage. Eyes to be considered for corneal grafting and/or irradiation numbered 65. Cases to be considered for radium or x-ray therapy of the eustachian tubes numbered 189. One hundred ninety-six cases of corneal scarring from attacks of phlyctenular keratoconjunctivitis were noted and the young man performed 165 operations in both fields together.

Dr. Vogel's comments at the conclusion of his tour of duty in Alaska were, on the whole, complimentary, and he considered his time here as one of the most valuable periods of his professional life.

In addition to the clinical work outlined above, he had the privilege of working in Sitka with Dr. Phillips Thygeson, who was at that time engaged in the study of phlyctenular keratoconjunctivitis among the natives of Alaska. In the field of ophthalmology Dr. Vogel performed the following operations during his six months' stay: iridencleisis (1), operations on the extraocular muscles of the eye (18), combined cataract extractions with complete iris section (4), operations for ptosis (1), enucleation (1), plastic repair of a coloboma of the eyelid (1), removal of a subconjunctival fibrolipoma (1), dacryocystorhinostomy (2), transplantation of pte-

rygium (2); and the remainder of the operations performed by Dr. Vogel were mostly tonsillectomies and adenoidectomies.

Eye Problems of Natives

The main difference between the problems of the white people of Alaska and those of the native population lies in the presence of a disease that is seldom seen in the larger clinics of the continental United States; namely, phlyctenular keratoconjunctivitis, and the ravages of this affliction are what make the ophthalmological picture among these lovable people so tragic.

The prevalence of pulmonary tuberculosis among the population of Alaska is five times as great as the most heavily infected area in the continental United States. It is well known that tuberculosis is a sociological disease intimately connected with the living conditions and the economic status of the people. The economic status of the Alaskan native is, generally speaking, poor and certainly much worse than that of the white population. The incidence of pulmonary tuberculosis among the natives is even greater than it is among the whites. The facilities for the care and the prevention of further infection among native and white population alike lag far behind the actual need.

Studies by Thygeson and Fritz conducted in Sitka and elsewhere in the Territory and published in the February, 1951 *American Journal of Ophthalmology* suggest a very close correlation between the incidence of pulmonary tuberculosis and phlyctenular keratoconjunctivitis. Some idea of the severity of this disease can be gleaned from the following statistics: in 1947 the writer examined 400 cases in west-

ern and northwestern Alaska. Of the 400 cases, 127 were found with corneal opacities and, of these, 38 eyes had visual acuity of less than 20/70. Nineteen cases had acuity of less than 20/70 in the better eye when corrected. Over 90 per cent of the 127 cases were inactive, exhibiting the scars from previous attacks only. The remainder were in different stages of activity ranging from mild irritation to severe inflammation of an entire eye.

In 1949 Thygeson and Fritz studied a group of 345 Alaskan Eskimo and Indian children at the Mt. Edgecumbe School. Ten children showed active phlyctenulosis, 143 children had evidence of old phlyctenular disease. A definite relationship between low visual acuity and central corneal scarring and vascularization was noted. Corrected visual acuity of less than 20/200 was recorded in four of the more severe cases. It was concluded that phlyctenular keratoconjunctivitis was the major cause of visual disability among the natives of Alaska, as judged by the enrollment of the school which is drawn from all parts of the Territory.

Phlyctenulosis

In 1950 Thygeson and Fritz studied this condition further in southeastern Alaska, examining over 500 students at the same school mentioned above. More than 125 cases were also examined at the Sheldon Jackson Jr. College. Observations were made on an additional 65 patients at the Orthopedic Hospital and 120 patients in the Tuberculosis Sanatorium. The examiners were also fortunate in being able to examine the entire population of two towns—Hydaburg, in which

the established incidence of pulmonary tuberculosis was three per cent; and Angoon, where the incidence of pulmonary tuberculosis was over 17 per cent. A very close correlation between the incidence of pulmonary tuberculosis, as evidenced by x-ray and tuberculin tests, and phlyctenulosis, was established by this study. Since the disease is generally considered as being an ocular allergic response to infection elsewhere in the body, it is now believed, on the basis of this close correlation, that this allergy is a reaction to tuberculo-protein.

The ophthalmological as well as general medical care of the Alaskan native is somewhat different from that accorded the white population. Unfortunately, there are two agencies charged with the health of the native. The first is the Alaska Native Service, which runs hospitals throughout the Territory; and the second is the Alaska Department of Health, which does not restrict its activities to the natives but is charged with the public health care of the entire population. The prevention of this crippling ocular disease depends upon raising the economic level of the people and teaching them the proper care and recognition and the importance of phlyctenulosis in infants and in pre-school children. Educating physicians and nurses is not enough. The information must be disseminated to all individuals everywhere in the Territory. This generally includes the schoolteachers, the physicians, and nurses of the Alaska Native Service and any enlightened native or white people in the smaller settlements.

Proper treatment must be understood by responsible individuals and supplies of necessary drugs must be

easily at hand. Above all, the mothers of the young children must be taught the importance of any ocular inflammation and especially any inflammation accompanied by the little white nodule on the white of the eye or the little grey nodule on the cornea, both characteristic and diagnostic of the disease.

Treatment

A further study made in 1950 by Thygeson and Fritz has revealed that cortisone, within 72 hours, will abort an acute attack of phlyctenulosis. This study embraced 18 individual cases, and the results were uniformly quick, dramatic, and inexpensive. As soon as further confirming studies are completed, steps are to be taken to carry the information and the drug to the remotest settlements in Alaska under the aegis of the Alaska Department of Health and the Alaska Native Service. We therefore still must consider those individuals, both school children and adults, whose visual acuity in the better eye is less than 20/70 corrected.

The medical attack on this problem consists of Beta irradiation of the scarred corneas accompanied by or followed by a course of hydrosulphosol used topically and by mouth. Following the completion of this work corneal grafts may be undertaken.

The effect of Beta rays, as emanations from strontium 90, is now being commenced with the acquisition, by the Alaska Department of Health, of an applicator containing this radioactive isotope.

That the ophthalmological problems of the Territory are intriguing is quite evident by the continued interest of the renowned Phillips Thygeson,

M.D., who has taken one month out of his very busy life in 1949 and in 1950 to come up here to study the problem of phlyctenulosis. The one resident who has taken advantage of the affiliation between his university (Duke University) and the Alaska Department of Health has been most enthusiastic about his stay here. It is the writer's hope that impetus will be given this unique opportunity in ophthalmology by an editorial that appeared in the November, 1950 *American Journal of Ophthalmology*. A resident from the University of Oregon is coming up for six months beginning July 1, 1951.

Opportunities for Ophthalmologists

The practice of ophthalmology in the more or less pioneering community which Alaska represents is a great challenge where both the obstacles and the rewards are great. The resident from the University of Oregon expects to establish his home and practice in southeastern Alaska at the conclusion of his affiliation here with the Alaska Department of Health. A full-time job is open with the Alaska Department of Health for anyone who would like to make a public health career in ophthalmology his life work. The income and the remoteness from medical and other attractions of large centers of population seem definitely to be deterrents to almost all the men with whom the author has been in communication regarding establishment of a home and practice in the Territory. For the man who expects great social and financial reward for his efforts, Alaska holds very little, but for the man who wishes to realize at the end of almost every working day

that he brought help to those who, but for him, would receive no help at all, the rewards are great and the work is most satisfying. The hospitality of the Alaskan in the smaller community is legendary and most heart warming. In every community to which the specialist goes a great effort is made to have him enjoy the things for which that particular town is famous.

The ophthalmologist must do his own physical examinations. He often must do his own laboratory work. He does his own fields and if there is orthoptic training to be undertaken, the ophthalmologist does that also by means of commercially available equipment. There are no residents or interns to take the burden of detailed work away from him. In small communities he gives his own anesthetics with a portable suction pressure apparatus. The preparation and care of his instruments are his responsibility. The entire responsibility from the admission of the patient to the hospital to his discharge and his treatment either at the hands of others or in his own office are the responsibility of the ophthalmologist who lives here, and his alone.

Need for School for the Blind

The blind in Alaska fare very badly. If they are not neglected in some home in the village, they are sent outside to Oregon or the state of Washington to the homes for the blind established in those states. There is need for the establishment of a school for the blind in the Territory but the other public health needs are so great that it seems to the author that the establishment of such a school is something for the dim and distant future.

Education of Partially Seeing

The need for a sight-saving program in Alaska is recognized by educators and some physicians in Alaska. Contact was made two years ago with the Director of the National Society for the Prevention of Blindness, who offered to the Alaska Native Service scholarships for two teachers. The idea was to have one teacher-resident at the native school at Mt. Edgecumbe, and one itinerant teacher, who was to spread the knowledge of techniques for partially seeing children to the teachers in the schools in the various towns throughout Alaska. The wheels of bureaucracy, however, grind very slowly their wonders to perform, and before any definite action could be taken to take advantage of the scholarships offered to the two teachers, fiscal problems and the end of the budget year and other administrative technicalities prevented the fulfillment of this dream and the establishment of a program for partially seeing children.

Of orthoptic training there is none except what little the author has been able to provide in certain select cases where pieces of apparatus may be rented or purchased at reasonable prices from optical supply houses in the United States. The problem of artificial eyes is also a challenge. The use of motility implants has not been undertaken because the part of the prosthesis that is visible to the outside world must be prepared by hand and fitted to each individual case and, as has been mentioned before, a round trip to the United States plus the expenses incident to such a trip for professional care would make this, in the great overwhelming majority of cases, prohibitive.

Summary

The discovery that cortisone is effective in aborting acute attacks of phlyctenulosis, and the acquisition of a strontium 90 Beta ray applicator, are two tremendous steps toward the solution of our greatest ophthalmic prob-

lem in the Territory of Alaska. Interest on the part of young residents in ophthalmology in the universities of the continental United States must be stimulated and maintained if more and better ophthalmology is to be practiced among a deserving and lovable population of Alaska.

TYPE WAS MADE TO READ*

By Berton Braley

"Type," said the Foreman, "was made to read,
And that is a maxim it's well to heed,
For the printer frequently gets a start
With a craze for 'beauty,' a bug for 'art,'
Which holds him fast in a fearful gripe
And keeps him trying mad stunts with type,
With seventeen fonts and seventy styles
And borders by thousands and rules by miles.

"Type," said the Foreman, "was made to read,
But the printer, oftentimes, in his greed
For novel features and 'class' and 'tone,'
Forgets this fact he has always known
And sends out work that is fine to see
And 'smart' and 'natty' as it can be,
A job with a swagger and high-bred look,
But hard to read as a Chinese book!

"Type," said the Foreman, "was made to read,
And that should serve as the printer's creed,
For work on the Linotype machine
Or hand-set jobs should be clear and clean,
Not ornamental, obscure, bizarre,
Composed of all of the fonts there are,
But simple, legible, quiet, plain,
A joy alike to the eye and brain!

"For art in printing is not the way
Of wild extravagance, weird display,
But rather the unobtrusive thrall
Of type that gives you no shock at all,
But draws your eyes to the page with zest
And holds your mind to the thought expressed;
We must keep ourselves to this simple creed,
Type was made—and is meant—to READ!"

* Reprinted with permission from the *Linotype Bulletin*.

Adding Sight to Years—Some Legal and Medical Implications *

Lorand V. Johnson, M.D.,

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INDICATES how working age can be extended if proper attention is given to all visual factors, including job analyses.

AS years are added to the useful working span of the skilled employee special problems in sight conservation are created. Remarkable progress in sight conservation has been made by such organizations as the National Safety Council, the National Society for the Prevention of Blindness and the Joint Committee on Industrial Ophthalmology, and the results of these endeavors are seen in every report on reduced incidence of eye injuries, as well as in industrial liability resulting therefrom.

The belief that the older worker is more of an accident risk than the younger is not justified by facts. Kossoris has shown that among 26,000 employees in four plants the accident rate was higher for the younger workers, in terms of frequency. That is, the average number of disabling injuries per million man-hours of work was higher among the young than the old.

* Digest of a paper presented at the Ohio State Safety Conference, September 21, 1950.

The rates for men between the ages of 40 and 54 were only about two thirds as high as for those under 21, and about the same as for those between 21 and 29.

Visual health and efficiency among older workers would be much improved and the handling of claims greatly simplified if more attention were given to two important factors: an adequate eye examination at time of employment; and a careful record of this and subsequent examinations showing any impairments which might prevent correction to industrial requirements.

Although the policy of providing safety glasses, with refractive correction where necessary, is practically universal, few industrial plants ask for information concerning pathology in the eye. Thus the worker may remain unaware of need for medical treatment to cure or arrest disease which threatens his vision; and the plant has no accurate diagnosis and record for

use later on if injury claims are presented.

One large plant in our area requires that an oculist's report describing in detail the nature of any visual impairment be kept with the patient's dispensary record. To enable the dispensary to keep complete data of this sort it would only be necessary to add space on the blank for the oculist to record corrected visual acuity with the safety glasses, and to include specific diagnosis in cases where acuity is not correctible to 20/20 or 20/30. Both employees and employer benefit from this practice.

Hazards to One-Eyed Employees

Many of our smaller industries are still placing in hazardous occupations men with good visual acuity in only one eye. I quote a few cases from the Industrial Commission of Ohio, all permanent total disability (P.T.D.), which illustrate the additional hazard for this type of employee:

On 11-7-45, while using welder, intense heat burned right eye and face. Had defective vision in left eye for many years. P.T.D.

Injured 6-24-46 while charging bottles with CO₂, when bottle burst and struck him in the right eye with loss of most of the contents of eye. Left eye had been enucleated 13 years before. P.T.D.

On 9-2-47 while operating die casting machine, die snapped shut and handle struck claimant on right side of head. Had been blind in left eye for some time. P.T.D.

Right eye lost in 1929 by a dynamite explosion. Left eye lost in 1946 by a crew of rock dusters spraying him with rock dust. P.T.D.

Injured 9-7-45 by explosion of degreasing vat when solution was

thrown into right eye. Left eye had been enucleated in childhood. P.T.D.

Injured 8-29-45 when chips from casting flew into his right eye, causing a traumatic cataract. Left eye had been injured and vision lost 20 years ago. P.T.D.

Injured 6-1-45 while inspecting tappets of centerless grinder when foreign body entered his right eye. Thirteen years ago firecracker exploded in front of his left eye, destroying it. P.T.D.

Obviously several of these unfortunate employees were performing hazardous occupations. While I have no record of safety devices or protective equipment used in each case, it is probable that not one need have suffered the penalty of permanent total disability if he had been assigned to a task which made allowance for his visual limitations.

Cause and Effect in Eye Disease

Many very reputable ophthalmologists are reluctant to accept industrial practice because of the far too frequent necessity of certifying as industrial liabilities cases of incipient eye disease which do not obviously relate to alleged injuries. Particularly is this true in such conditions as incipient iritis where intermittent symptoms over several days may cause the patient to go to the industrial nurse, thinking something may have got into his eye. The nurse, zealous of being helpful, will frequently instill drops of pontocaine or of antiseptic solution, hoping that she may allay the symptoms sufficiently long for the man to continue his work through the end of the day; and that the condition will be self-limited and without symptoms the following day.

Far too frequently in a case of this sort an innocently self-inflicted abrasion is received on the anesthetized cornea, which results in an honest certainty on the part of the employee that the eye is now worse (after the drops) and that some responsibility exists because of the help given by the nurse. Later, when seen by an oculist, the patient has a well-established pattern as to how the accident happened, and a certainty in his own mind of the industrial responsibility for all consequence of the iritis, not only in the allegedly injured eye but frequently in the second eye, where the disease later develops.

While the incidence of self-limited undiagnosed eye irritation is very high in the experience of any industrial nurse, likewise is the incidence of undiagnosed but industrially accepted uveitis very high in the experience of any oculist who is handling a considerable number of industrial consultations. I recommend as sound policy that when a foreign body is not seen to be present, or when secretion positively identifying the irritation as a conjunctivitis is not seen to be present, the industrial nurse frankly tell the patient that she does not see cause and effect relationship between his symptoms and the alleged injury; that if he wishes he may use an antiseptic eye solution; or that if his symptoms do not abate spontaneously it would be well for him to consult his own or a suggested oculist for a diagnosis. Then the oculist should be allowed a free opinion as to whether industrial responsibility is involved.

Equally embarrassing is the referral in consultation from an industrial clinic or plant physician where several visits have been made and industrial

responsibility assumed before the true diagnosis was made. Too seldom do we see on reports "search for foreign body, none found," which report does allow limited industrial compensation for the visit, and still no industrial responsibility for later developments of undiagnosed ocular conditions.

Medical Insurance Plans

The proper allocation of such responsibility will certainly be made easier with the institution of the new medical insurance plans. There is no question that with nonoccupational sickness and accident insurance, compensation for loss of time, and hospital and surgical benefits, many conditions now confronting the doctor and employer as of industrial inception will be properly allocated to the non-occupational category.

Experience alone will show to what extent coverage of this type will reduce the premium required for the state industrial commission, or the budget for industrial self-insurance, but there is no doubt that this saving will be considerable. It is also certain that plans of this type will have an important bearing on present statistics used for pension plans. More adequate medical care throughout the lifetime of the employee will not only preserve sight but help in making far fewer subject to pension provisions between the optional ages of 50 and 65 or 68, where because of physical reasons an employee may accept pensions on a somewhat reduced scale. It is in this age group, 50 to 65, that the greatest number of disabling disease conditions of the eye are found. Among such conditions are diabetic and hypertensive retinitis, vascular disease,

degeneration of the macula, glaucoma, cataract, spontaneous hemorrhage from anemia or leukemias and optic atrophy.

Orientation in Industrial Medicine

I am impressed by the farsighted approach which I understand the Cadillac Division of General Motors is employing in the city of Detroit. Their desire for well trained and capable industrial physicians has led them to obtain approval by the American Medical Association for practical experience gained in their dispensary toward internship in industrial medicine. These students, upon completing medical school, apply for this combined residency, wherein during two years they spend alternating six months' periods in an accepted hospital and in the Cadillac dispensary where some remuneration is provided. Certainly men so trained have a background and a vision which equips them for a lifetime specialty in industrial medicine. Few plants are privileged to avail themselves of the service of such specialists for the care and future welfare of their employees.

As a physician in close contact with many industrial patients I am con-

vinced that the employee desires not free medical care but competent medical care to protect his productivity, thus safeguarding himself and his family. Few major industrial plants fail to make provisions for trade schooling or apprenticeship for their skilled employees. How many provide training for their industrial physicians? I know of no medical school which does not have in its curriculum a course in tropical medicine. I likewise know of but few which have an adequate chair of industrial medicine, where interested students may elect to obtain sound training. I know of no medical school where an industry or associations of mutually interested industries have provided for themselves research and training facilities in industrial medicine.

I am certain that these facilities will become available for the betterment of both industry and labor, and that the general noncontributory pension plans so rapidly being accepted will make mandatory not only the addition of sight to years but, from purely economic considerations, the supervision of nonoccupational sickness and accident as well as that resulting from employment.

Causes of Blindness in Israel

A. Feigenbaum, M.D.

Jerusalem, Israel

COMPARES problems of prevention of blindness in Mandate Palestine with those under the State of Israel since its proclamation in May, 1948.

ONLY a modest answer can be given at the present time to the query about the incidence and the causes of blindness in Israel, the measures taken or planned for prevention.

The reasons for this are obvious. At the end of 1950 the State of Israel, occupying the greater part of the previous mandated territory of Palestine west of the Jordan, was still only a baby of less than three years. The Jewish war of liberation was followed by a revolutionary change in the composition of the population, with two main factors at work: (1) the mass exodus of the Arab civil population before the start of the war; and (2) the mass influx of Jews (mainly from countries of persecution) since the proclamation of the State of Israel (May 15, 1948). The relevant figures (with the omission of unimportant numbers of "others") best illustrate this radical change. There were approximately 625,000 Arabs and 650,000 Jews before May 15, 1948, in the area of mandated Palestine which today constitutes the State of Israel, and at the end of 1950

there were 168,000 Arabs and 1,203,000 Jews in the same area.

Mandate Palestine Era

In order to reply to the query we must review conditions prevailing in Palestine before the new period and, by considering the elements of change, try to present a somewhat sketchy description of the actual status and the future possibilities for prevention in Israel.

Climate and Primitive Populations

The more primitive a population and their living conditions the greater is the direct influence of climatic factors promoting blindness. Thus, it is known that climatic factors and backward conditions prevalent in the Near East are furthering a regular appearance of two main types of highly infective ophthalmia in seasonal epidemics (peak in summer and autumn) which have been thoroughly studied in Egypt and Palestine. They are caused by the

Koch-Weeks bacillus and the gonococcus, both exclusively pathogenic for man, the former being confined to the human conjunctiva, the latter affecting the urethra also. In the Near East, the gonococcus, the principal cause of blindness, is chiefly transmitted from eye to eye, venereal transmission playing an unimportant part, as shown by the rarity of ophthalmia neonatorum in Egypt and Palestine. The Koch-Weeks conjunctivitis is less dangerous to the eye but it is much more prevalent. Its main epidemiological importance lies in the fact that in countries where trachoma is prevalent, the Koch-Weeks conjunctivitis prepares the eye for infection with this disease.

In Palestine, "good" and "bad" years with regard to the severity of the regular ophthalmia epidemics were registered. The years 1928 and 1935, for instance, in which most severe epidemics of gonococcal ophthalmia occurred mainly in the Arab rural population, resulting in an exceedingly high incidence of blindness, were characterized by unusual heat and dryness and the highest proportion of sirocco days in a number of years.

Prevalence of Blindness Prior to 1947

Some reliable facts and statistics on the problem of blindness in Palestine during the period of the British Mandate are available in published literature. Figures from eye clinics, however, although illustrative to some extent, do not give real information as to the prevalence of blindness among the general population. Statistics from some of them, nevertheless, indicate a certain trend.

In his excellent report in connection with the census of 1931 (to be referred to repeatedly in this article), Strathearn gives the following figures of the rate of blindness among 214,892 individuals attending the out-patient department of the Ophthalmic Hospital of the Order of St. John in Jerusalem during 13 years: blind in one eye, 8.4 per cent, and in both eyes, 3.4 per cent; the great majority of these patients were Arabs. The rate of total blindness in Jewish Jerusalem eye clinics at a certain period was: (a) among 17,804 persons attending, 11 per cent in Arab and 0.84 per cent in Jewish patients (Ticho); and (b) among 29,198 persons attending, 5.3 per cent in Arab and 0.6 per cent in Jewish patients (Feigenbaum).

Fortunately the 1931 census of the population in Palestine also contained information about the prevalence of blindness. Although for scientific purposes only records made by trained and experienced ophthalmologists are of value, the degree of error in the census records for practical purposes in former Palestine may have been smaller than in a more educated community, as rightly stressed by Strathearn. The error here lies in an understatement.

In the 1931 census in mandated Palestine, 19,076 blind in one eye and 8,172 in both eyes were found among a population of less than a million, or, more exactly, 8.43 totally blind in 1,000 of the population. The final figures of the census were: 10.6 totally blind persons per 1,000 among Moslem Arabs; 5.6 per 1,000 among Christian Arabs; 1.3 per 1,000 in the Jewish community; and 5.6 per 1,000 in "others." With such a high proportion of blindness, conditions at that time can only be compared to conditions in

Egypt which for centuries had the doubtful distinction of being called the "land of the blind."

The most valuable part in Strathearn's report is an intensive and direct examination of blindness among practically all the inhabitants of ten selected entirely Arab Moslem villages (5 in the North and 5 in the South) with over 10,000 inhabitants. This "sample examination" really gave much higher figures than those obtained at the same time by the census: 14 per 1,000 totally blind in the North and 29 per 1,000 in the South.

Causes of Blindness

An analysis of the 1,118 blind eyes (not persons) in Strathearn's series showed that in 74.5 per cent of them acute ophthalmias, directly or indirectly, were the cause of blindness. Thus Strathearn again demonstrated that the problem of the prevention and amelioration of blindness in Palestine was the problem of the prevention and treatment of acute conjunctivitis. This was in complete accord with the findings of previous investigators who insisted that about 75 per cent of all cases of blindness were the result of acute ophthalmias with a maximum onset in the first decade of life. The problem narrowed itself down to a consideration of the living conditions among the inhabitants of Moslem villages, especially those of the southern district where lack of water and absence of all sanitation were prevalent.

In the Jewish settlements, whether in towns or in villages, Strathearn found no problem. In 1913 the present writer, in a similar investigation among 1,487 unselected Jewish inhabitants of

Palestine, found 36 persons blind in one or both eyes. To a more limited extent the same statement held good for the Christian Arab villages in which the standard of living, housing and education were appreciably higher than in the neighboring Moslem villages.

The remaining blind eyes in Strathearn's series were due—in the order mentioned—to fevers (measles and smallpox), over 10 per cent; cataract, 5 per cent; primary glaucoma, almost 5 per cent; injuries, 2.5 per cent; fundal changes, almost 2 per cent; and congenital conditions, 0.5 per cent. In 1927 the present writer found among 137 inmates of Jerusalem homes for the blind (comprising Arab and Jewish children and young adults) the following distribution as to causes: from ophthalmias, 54.8 per cent; smallpox, 9.5 per cent; congenital and hereditary diseases, 5.1 per cent; injuries, 3.6 per cent; measles, 2.9 per cent; tuberculosis, 0.7 per cent, and unknown causes, 23.4 per cent.

Smallpox has since long ceased to have any significance as a cause of blindness in Palestine because after vaccination became obligatory under the British Mandate the disease practically disappeared. In 1937 this writer still found 3 per cent of adults totally blind (and 6 per cent in one eye) from this disease; but as the years progressed, fewer and fewer young people presented traces of the disease and in the last decade none at all.

Medical and Social Programs

Whatever work has been done in former Palestine in the field of medical services was done by various Christian Missions; by a steadily expanding ac-

tivity—for the benefit of all parts of the population—of the Jewish sector; and by a modest activity of the Palestine Government. The Arab community itself hardly participated. In the field of general sanitation and prevention the Government did work adequate to the means at its disposal in a "colonial" country, but the Jewish community could not content itself with these measures. During the past 30 years the Jews developed a system of their own preventive services, in which the American-sponsored Hadasah Medical Organization played a leading rôle, including a campaign against malaria, prenatal care, infant welfare, preschool child welfare and school hygiene. Regular supervision of eye conditions was established in all schools and the necessary daily treatment of trachoma, in particular, was carried out. Social progress together with these activities brought about a remarkable improvement in this field to which we shall refer later.

Under the State of Israel

The decisive change between the former period and the period inaugurated with the establishment of the State of Israel is characterized by the emergence of an essentially progressive and dynamic community contrasting sharply with a community, a large part of which was in a state of stagnation. But the element of backwardness, so obvious in former Palestine, was not completely eliminated in this new Israel.

In trying truly to fulfill its enormous task of redressing a calamity of many ages, Israel, in its program of immigration (the "ingathering of exiles") excluded no one, either because

of poverty or affliction with disease or infirmity of any kind. Thus, by admitting immigrants from the North African countries (Morocco, Algeria, Tunis and Libya), Iran, Iraq and Southern Arabia, the spread of trachoma again became acute. This immigration made blindness an actual problem in Israel.

A recent inquiry made by the Government gave figures of totally blind persons in Israel for the end of 1950 which, because not based on a census of the population, are undoubtedly an understatement. Until more reliable data are available, however, these incomplete and probably incorrect figures will have to be used—*faute de mieux*.

Correcting the error by a moderate increase of 20 per cent, the total number of blind persons would amount to no less than 620—440 Jews and 180 Arabs. (The latter figure is very questionable.) This, in relation to the total number of both groups in Israel at the end of 1950, would mean a rate of 0.37 per 1,000 totally blind among the Jews, and 1.1 among the Arabs—a ratio of exactly 1:3. In 1931 this proportion was 1:8, as mentioned previously (1.3:10.6). This change may be explained by the relatively large immigration, mostly from Arab countries, of destitute Oriental Jews.

Jewish Immigration

During the past two and a half years (until the end of 1950) 553,000 Jews immigrated into Palestine. Of these, 66.8 per cent were Ashkenazim (Jews of European or Western extraction); 12.7 per cent were Sefaradim (of Spanish extraction—from Bulgaria, Yugoslavia, Greece, Turkey and

Egypt); 7.2 per cent were Yemenites (from Southern Arabia); and 13.3 per cent were Jewish Orientals (from Morocco, Algeria, Tunis, Libya, Iraq, Syria, Lebanon, Iran and other Asian countries). The absolute numbers of the latter two groups, the Yemenites and the "other Jewish Orientals," are 48,000 and 110,000 respectively (without taking into account the natural increase during the period in question). These 158,000 persons — somewhat more than one quarter of the total immigration so far—are the most heavily affected with blindness as well as with trachoma.

Trachoma

As pointed out, the prevalence of both total blindness and trachoma to a certain extent reflects the social and hygienic conditions prevailing in a given country. In socially backward communities, the spread of trachoma is greatly aided by ignorance and indolence of the masses. In this context it is worth while making a slight digression into the question of trachoma (by no means one of the direct causes of blindness!) in former Palestine. In a country with widely differing sectors of the population, such as Palestine used to be, the incidence of trachoma can easily serve as an indicator with regard to the social standards of the communities.

In 1922, trachoma cases among Arab school children amounted to 72 per cent, and in 1939, in spite of 17 years of British tutelage, it was still 49 per cent. In the latter figure, in addition, the large number of Arab children, especially girls, who did not attend school are not included and data are not available.

In Jewish schools, which always embraced the large majority of children of school age of both sexes, the percentage of children with active trachoma was 34 per cent in 1918 and about 2 per cent in 1947. And these comparatively few cases in the last years of the Mandate were concentrated in the more primitive Oriental Jewish communities (Persian, Iraqi, Kurd, etc.) among whom (in 1947) the incidence of trachoma in general was 4 per cent as compared with 0.5 per cent among Sefaradic and 0.06 per cent among Ashkenazic Jews.

The large influx of immigrants from Oriental countries which must continue and even increase in proportion, however, is recreating the trachoma problem (requiring readjustment of anti-trachoma services which, in 1947, had already been on the point of being greatly reduced because there was no longer any need for them in the Jewish sector). Moreover, it is creating conditions similar to some extent, although smaller in scope, to those in mandated Palestine. During that period, the Moslem Arabs were the real problem; now the Oriental Jews are playing a similar role.

The immigration from the Yemen is practically complete but a large influx is to be expected from the "other Oriental countries." For example, from Iraq alone around 100,000 will arrive in the near future. True, the Yemenites are to be regarded as the most heavily burdened community in regard to blindness (and trachoma) but let us also remember that the rest of the Oriental Jews, still on the increase, are next on the list. Some 250 blind are reported to be coming from Iraq, of whom over 100 are of school age.

Causes of Blindness

In reviewing the causes of blindness at present we are up against the same great difficulties as when trying to assess the number of persons affected. No wonder, since the immigrants are still partly dispersed under fairly primitive conditions. They are being transferred to various towns, villages, settlements—old and new—and so-called transient labor camps where work and means of subsistence have to be found for them. And, last but not least, the available social workers, employees, teachers, doctors, nurses, etc., are chronically most inadequate to deal

with the enormous task and the manifold problems such as a large, rapid and varied immigration presents. This is also true with regard to the number of beds available in hospitals.

There are as yet no reliable statistics on the subject—in fact no statistics at all. Thus we have to rely on impressions and some figures taken from our out-patient department.

Among 6,950 new patients at the Hadassah University Eye Clinic in 1950, 69 (1 per cent) blind in one eye and 61 (0.88 per cent) blind in both eyes were found. The distribution as to the causes in the following table is illustrative to some extent:

CAUSES OF BLINDNESS*
BASED ON 6,950 PATIENTS

	<i>Blind in One Eye</i>	<i>Blind in Both</i>
Ophthalmia.....	30	21
Smallpox.....	1	9
Meningitis.....	..	2
Leprosy.....	..	1
Syphilis.....	1	..
Iridocyclitis (tb. or unknown).....	4	3
Sympathetic ophthalmia.....	..	1
Glaucoma (primary).....	6	3
Infantile glaucoma.....	..	1
Arteriosclerosis.....	1	1
Diabetes.....	..	1
Complicated cataract.....	..	3
Corneal dystrophy.....	..	1
Excessive myopia.....	..	4
Retinitis pigmentosa.....	..	7
Detachment of the retina.....	6	..
Malignant tumor.....	1	..
Xeroderma pigmentosum.....	1	..
Cerebral tumor.....	..	1
Injuries (including war injuries).....	18	1
Unknown.....	..	1
	<hr/> 69	<hr/> 61

* Hadassah University Eye Clinic, 1950.

During 1949 and 1950 no less than 230 totally blind were found among a total of approximately 2,500 patients at the Eye Clinic of the Government Hospital in Haifa—the port of immigration.

The leading causes of blindness are still acute ophthalmias, prevalent especially among the Yemenites and the "other Jewish Orientals." Ninety per cent of blind from smallpox are found among the Yemenites. This disease is found occasionally only among the Bedouin tribes in the Negev (Southern Desert). Leprosy still exists in this country, but because it occurs infrequently, it plays a very small rôle as a cause of blindness. There is a leprosarium in Jerusalem, a charitable Christian institution aided medically by the Hadassah University Hospital.

Injuries are an important factor, and are on the increase. In order to meet more efficiently the dangers of primary glaucoma—an all too frequent cause of blindness in the elderly—glaucoma clinics are being established in our out-patient departments. Thus the category of avoidable eye diseases is fairly high. The rest of the cases is made up mainly of general diseases and cases of congenital and hereditary origin. Syphilis hardly figures in the records. The same can be said of grave nutritional deficiencies, such as keratomalacia.

Prevention Activities

As regards prevention of blindness one consideration emerging from the previous descriptions must be kept in mind, namely, the fact that the great majority of the Jewish blind today in Israel, whatever their numbers—in contradistinction to the Arab blind—are "imported" and in no way a

product of actual conditions prevailing among the Jews of this country. Thus the problem to a large degree becomes limited to a sector of recently immigrated Oriental Jews and the Israeli Arabs.

As conditions during a number of months after the arrival of a large part of the immigrants are, of necessity, fairly primitive, great vigilance is imperative. It is true that even among the Oriental Jews in this country less disease due to negligence and ignorance has always been noted in comparison with that existing among the Arab population. Under the circumstances just mentioned, however, the danger of a direct influence of climatic conditions on the Oriental immigrants becomes a real one, especially because they are so closely exposed to the sources of infection with ophthalmias.

Hygienic Standards Raised

In our special case most of the efforts, hampered by economic difficulties, of a rapidly progressing country are automatically working toward prevention of avoidable eye diseases and their early treatment, which coincides with the basic prevention of blindness. The water supply is increasing daily, roads are built and communications improved. Public health services and sanitation are progressing. There are provisions for compulsory school attendance and elementary education of children between 5 and 14. A system of equitable distribution of foods has been established. Hospitals and clinics, though under great hardship, are gradually expanding, and the number of doctors and nurses slowly increasing. The problem of housing, one of our sorest problems, is being tackled energetically.

Expansion of Anti-Trachoma Campaign

Next to all the measures of a more general nature which cannot be relaxed in view of the continuous arrival of newcomers, the direct campaign against trachoma as well as against all infective ophthalmias is of primary importance. The anti-trachoma services have to be in a process of continuous expansion. These services, in former times an almost exclusive field of activity of the Hadassah Medical Organization, are now essentially a Governmental task and are at present being entrusted in part to a number of medical and social agencies. Army doctors and personnel, the Workers Sick Fund's staff and the Hadassah are all trying to cope with this difficult problem.

As far as school hygiene is concerned expert medical supervision of school children exists in town and village, with daily treatment of those affected; the cases are followed into the families by social service workers. However, great difficulties arise with regard to the vastly dispersed smaller settlements and transient labor camps growing like mushrooms all over the country. Nuclei exist of a great variety of welfare centers, prenatal care, infant welfare and preschool child welfare stations. These all can and will serve as bases for anti-trachoma work, as they did in the past, though on a smaller scale.

The importance of the good hospitals now in operation, and a number of good eye departments mostly attached to general hospitals—though all of them are working under great stress—cannot be overemphasized in the prevention of blindness in this growing country. Of equal importance are the progressive medical profession

with good eye specialists and the ambitious Medical School in Jerusalem (under the joint auspices of the Hebrew University and the Hadassah Medical Organization) which is training a new generation of doctors and carrying on serious medical research in its laboratories, in spite of lack of space and facilities in practically all the institutions in Israel, whether medical or otherwise.

Need for a National Society

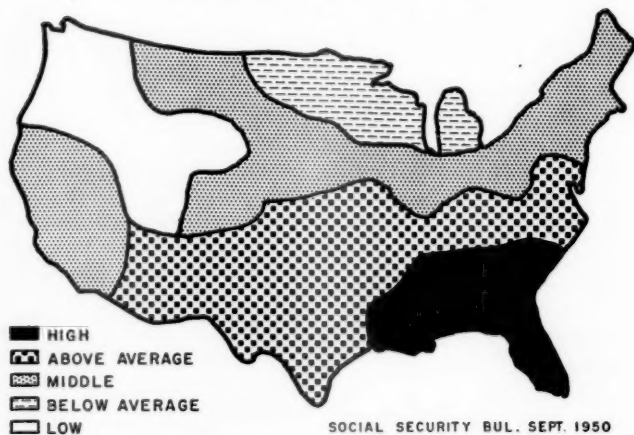
The need is felt for a national society for prevention of blindness which, sooner or later, will have to be created by interested laymen and ophthalmologists, with the initiative coming from the Israel Ophthalmological Society. Such a society will have ample scope for work. With the aid of the Government departments concerned (Health and Social Welfare) the work done in the field of prevention will have to be coordinated, and suggestions will have to be made for expansion. Legislation will have to be promoted with regard to avoidable eye diseases in general, and to compulsory reporting and notification of communicable eye diseases. These laws will also have to cover measures for the prevention of increasing industrial injuries owing to the growing industrialization of the country. A special problem is presented by children with seriously defective vision for whom special educational facilities will have to be provided.

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REGIONAL DIFFERENCES IN PREVALENCE OF BLINDNESS IN THE UNITED STATES, 1948



"Three factors are considered of special importance as affecting the prevalence of blindness in a given State or region of this country. They are the general health conditions of the area, the age distribution of the population, and the population's racial composition."—from "Regional Differences in the Prevalence of Blindness," by Ralph G. Hurlin and Walter M. Perkins, in the *Social Security Bulletin*, Volume 13, Number 9, September, 1950.

The Emotional Aspects of Visual Handicaps*

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POINTS out how the prevention of the emotional aspects of visual handicaps is logically an important part of a prevention of blindness program.

VISUAL handicaps of any kind jeopardize the individual's chances of making a good social adjustment. This is not a direct result of the visual impairment alone, but secondary to the emotional factors that go hand in hand with any physical handicap. Too often our full efforts are centered about the defect and we forget to take into consideration the individual involved. This is an important phase of any approach to prevention or correction, whether it involves the placing of glasses on a child to correct an error of refraction; medical or surgical correction of strabismus; treatment or prevention of infectious processes of the visual organs; or education and training of those with partial or complete loss of vision. Unfortunately, in considering these aspects we are likely to neglect the important part played by emotional reactions.

The primary interest of a prevention agency is the prevention of in-

juries and the prevention or correction of congenital defects and abnormalities of the eyes secondary to disease. Experience has brought about the realization that such an agency can also be most helpful in the prevention of the emotional reactions that are frequently present in anyone unfortunate enough to be confronted with a visual disability. It is recognized that there are really two handicaps to deal with: one physical, and the other emotional. The prevention of the emotional aspects of visual handicaps is thus logically an important part of a prevention of blindness program.

Eye Defects and Personality

Personality arises as the result of the interaction between an individual and his environment. Any condition which sets the individual apart from his environment has a marked effect upon personality development. This is especially true in visual handicaps. Deviations of this type are bound to influence the manner in which an individual reacts to his surroundings and

* Presented at the annual meeting of the Minnesota Society for Prevention of Blindness, November 9, 1950.

also the manner in which persons in his environment react to him.

Parental Responsibility

The major requisites for the development of a child's personality are the calm, accepting love of his parents and full social contacts with his contemporaries, within the limitations of the individual's basic abilities. Early child - parent relationships are extremely important in laying the foundations for the future success or failure in any individual's life. The attitude of the parent toward the child is of major importance. It is often the key to the situation and is where most can be done in preventing the development of emotional difficulties which often arise in the visually handicapped child.

Let us consider at this point some of the ways in which visual defects may alter the relationship between an individual and his parents. We should consider the following questions: What is the parent's reaction upon learning that he has brought into the world a child with a congenital visual defect? How does a parent react when he finds himself responsible for the care of a child who has developed a visual handicap through accident or illness?

Feeling of Security a Basic Need

Normally parents think of their children as being superior to others. Having a child with a physical defect is difficult for them to accept unless they are emotionally mature. Most generally parents react by being extremely overprotective. Some go to the opposite extreme and reject the child. One or both of the parents may

feel that they are being punished for some real or fancied transgressions in their past life. To compensate for this they may try to make it up to the child by anticipating his every wish and protecting him from all physical and emotional pain, and denying him contact with others who are not similarly handicapped. This type of overprotection may be as disastrous as outright neglect.

Under such circumstances it is almost impossible for a child to develop self-reliance, confidence in his own abilities to solve frustrating circumstances, and the ability to feel secure in his environment. This feeling of security is a basic need. It is the feeling of "all rightness" which a child has for his parents when they are entirely satisfied with him. Overprotection on the part of the parents of a handicapped child is a poor means of hiding conscious or unconscious feelings of shame or disappointment. The child senses this and, in addition to not becoming self-reliant, he begins to lack confidence in his abilities and finds it more difficult to adjust himself to the realities and the pressures of living with other human beings.

Parental Rejection Disastrous

Rejection of a handicapped child may be overt. More frequently it is less obvious and may be detected by inconsistent management and expectations of behavior that far exceed the child's abilities. The parents may feel that the child is too much of a burden and resent the additional responsibilities. Any of these reactions on the part of either or both parents creates tensions, bitterness, frustration and anxiety in the child. This throws upon him

an additional burden and increases his handicap, often resulting in a distorted personality. The parental relationship may thus develop into a serious problem.

Handicapped children, helped by the security of parental acceptance, manage to adjust themselves to their handicap. If they are successful in this they will be able to assimilate and integrate their difficulty into a workable mode of living. Let me emphasize here that *their emotional difficulties bear a closer relationship to their early home experiences and to their general background than to their visual defect.*

Acceptance of Handicap

A child develops his latent abilities to their fullest potential within the limits of his handicap when he is able to find constructive outlets for his emotional tensions. Although he may be aware of these tensions they are most often suppressed. He needs help and understanding so that the conflicts underlying his tension and anxiety may become conscious conflicts. He can then deal with them more effectively, resolving them or learning to accept them when necessary.

Unless these conflicts are resolved the child finds it more difficult to adjust himself to his environment. The unreleased energies tied up in these conflicts may find expression in (self-pity, hostility toward society, or withdrawal from social contacts. It is important for him to understand his reactions to himself, to his group and to the world at large. He should be helped to understand the reactions of other people to his specific disability and to learn how to handle some of the resultant discomforts that may arise from their feelings.

Psychological and Physical Insecurity

In the great majority of the visually handicapped, fears, worries, and anxieties are present, and these individuals tend to become easily discouraged. Because of their handicap people are prone to make them the center of activity and bring everything to them. This seems to destroy their initiative and is evident in their relationship to their school problems, their considerations of future responsibilities, and to their purely personal problems of everyday living.

Outwardly visually handicapped children seem to exhibit a great deal of confidence, but psychological testing reveals that they have very little well-developed confidence in their abilities. Their sense of insecurity is both physical and psychological. This is manifest by the frequency of real terror dreams. In those with vision or partial vision these dreams will consist of visual imagery. In the congenitally blind the dreams are of sound and movements. Depression is evidenced in some of them through dreams that could be interpreted as death wishes. Because many of them are limited in their ability to get around they develop an abundant phantasy life (day dreams) consisting of motor and auditory imagery.

Their feelings of inferiority, lack of initiative, and capitulation to discouragement often block the fulfillment of their ambitions. As a rule they are quite suggestible and respond well to encouragement. Most of them will admit to feelings of anger; however, they do not allow this to come to the surface, and "boil inwardly." Fortunately most of them have a well-de-

veloped sense of humor and are especially fond of playing practical jokes. This may be an outlet for their unconscious hostile aggressive trends which affords them a way to "get even with the world."

Emotional Disturbance Symptomatic

There is a wide span between good eyesight and obvious visual impairment. Oftentimes a child may become a behavior problem or develop psychosomatic complaints because of an underlying visual defect. These emotional aspects may be the first indication that the child is having difficulties with his eyes. Routine check-ups and thorough physical examinations are important in preventing and uncovering this type of difficulty. On the other hand, many people will complain of visual disturbance, all the way from blinking to actual complete blindness, which may be secondary to emotional unrest. Studies may reveal that they are having emotional conflicts and through conversion have channeled these to the visual apparatus. Most of these can be diagnosed by their indifference to the difficulty and the circumstances surrounding the onset.

Need for Special Educational Facilities

Many of the visually handicapped require special education adapted to their specific needs. According to authorities on this subject, "they need the direction of a teacher specially trained to understand the difficulties, both physical and psychological, that may arise from their visual impairment." In addition to this they should have the opportunity to join their

normally seeing companions in as many activities as possible. These things are most easily accomplished if the parents have been educated to give the handicapped child proper encouragement and understanding. He is also helped by being assisted in developing personality concepts which allow him to act freely with normally seeing people. It is necessary for the handicapped person to view the limitations imposed upon him in an objective and realistic manner, without loss of self-esteem. This is possible only if the people with whom he is in contact react to him in an understanding manner—not with maudlin sentiment or morbid curiosity.

Summary

Any program for the prevention of emotional problems in the visually handicapped must of necessity take into consideration the child-parent relationship. This means educating the parents so that they will be better able to manage their own feelings toward their visually handicapped child, help him to accept his disability and to adjust to it. Once the parents and the child have accomplished this they will not find it necessary to "pine for what is not" nor feel they have had a special burden placed upon them.

The training of the visually handicapped and the education of the members of his environment must take place simultaneously. They must learn how to react to one another. Out of this interreaction of personalities both will gain much. Efforts directed toward these ends will accomplish most gratifying results in the prevention of a second emotional handicap in those who have visual impairment due to accident, illness or congenital defects.

The Forum

THIS section is reserved for brief or informal papers, discussions, questions and answers, letters, and occasional pertinent quotations from other publications.

The Toronto Glaucoma Clinic

The glaucoma clinic at the Toronto General Hospital, first of its kind in Canada, was started in February, 1950. The need for this type of clinic had been apparent for a long time. In the busy out-patient department there is neither the time nor the personnel to deal adequately with the glaucoma patient. It was fortunate that our concern for this situation coincided with an increased interest in the problem of blindness prevention, in its various aspects, by the Canadian Government.

Public concern for visual care and for the prevention of blindness has, in most instances, been on a rather casual basis. To most people, failing sight is just a matter of changing glasses and, if perchance someone should unfortunately lose his sight completely, there is a blind pension awaiting. Thus the public conscience is assuaged. Certainly as far as glaucoma is concerned there is neither the awareness among the public nor the funds to fight this disease, which characterizes other maladies such as infantile paralysis, to give a conspicuous example.

It was also felt that at the present time the risk of failure deterred many oculists from operating on glaucoma cases, which consequently were allowed to progress to blindness. Particularly is this true in the smaller centers. In this respect the glaucoma clinic would serve as a clearinghouse for information and advice and for the hospitalization of problem cases.

Personnel

It was therefore encouraging to us that a public health grant was made to the University of Toronto for the purpose of the prevention of blindness from glaucoma, and a clinic was opened at the Toronto General, the University Hospital. The project provided for an ophthalmologist as director, a biochemist, clinical technician, social service worker and nurse. In addition, there would be available the services of two house surgeons undergoing ophthalmological training, on a rotation basis. These positions have been filled, with the exception of the biochemist, and we have at the moment a man training abroad preparatory to taking up this duty. It will be seen that we

are covering not only the clinical aspect of glaucoma but also the research and investigative phases, the latter in the laboratories of the Banting Institute.

As the project was getting under way we were fortunate in having Dr. Peter C. Kronfeld in our midst as guest speaker at a refresher course in ophthalmology, and he was able to give us the benefit of his very considerable experience in Chicago. I subsequently visited Dr. Willis Knighton in New York and Dr. J. G. Linn in Pittsburgh and they were both most kind and helpful in showing me the organization of their glaucoma clinics.

For some time after our clinic was started we tried to have the house surgeon take the visual fields. This did not prove to be a satisfactory arrangement as it was hard to persuade the average intern to take the time to chart an accurate field of vision. In the interests of obtaining comparable records this rôle was assigned to our technician.

Social Service

The social service worker interviews all new patients, takes a social history, and keeps a record of attendance. We have found attendance at our clinic to be surprisingly good. This is undoubtedly due to the fact that the patients are aware that an earnest effort is being made to help them, in contrast to the often somewhat perfunctory attention they had previously received. When the patient does fail to attend he is contacted by telephone or mail, to be followed by a home visit if necessary.

The social service worker plays an extremely important part in the smooth operation of the clinic. She is able to

take the time to get an accurate history of the onset of the disease and, on glancing over the files, I feel in this aspect alone much can be learned about glaucoma that will be useful to teach students and practitioners. The social service worker instructs the patient in the use of drops, the importance of their regular administration, and cautions him to get in touch with her should the medication be spilled or insufficient. Finally, where additional attendance at the hospital is required, either for diagnostic or special procedures connected with our research program, the social worker fills an invaluable rôle, overcoming any resistance by tact and persuasion.

Research

As eye pathologist in the University for several years I have collected a large amount of material relevant to glaucoma, the full study of which has not been possible due to the lack of technical assistance. With the aid of the technician and by the use of special stains we are now analyzing this material. The study of eyes enucleated for glaucoma often illuminates the ineptitude of our treatment.

Many oculists throughout the country have long suspected that the readings of their tonometers are faulty. It is of particular importance to have a reliable instrument in dealing with borderline cases. As a service to the profession, we established a tonometer-testing station at the Banting Institute to which oculists throughout Canada are invited to send their instruments for testing and revision of the conversion tables. We hope to collaborate and exchange information with the Committee on Standardization of Tonometers in the United States.

Education

Both press and radio have displayed an active interest in the project. Recordings have been made on the work of the clinic for transmission by the Canadian Broadcasting Corporation, and we are currently assisting in the production of a film on glaucoma which is being produced by the Canadian National Institute for the Blind, in cooperation with the Canadian Ophthalmological Society. This is largely based on our work.

Summary

Our main efforts for the first year of operation have been directed toward the smooth functioning of the clinic and the building up of a bank of glaucoma patients. With this bank of glaucoma patients and an increased staff, we propose to enlarge the scope of the work in its investigative phase.

T. HAROLD HODGSON, M.D.

*Director, Glaucoma Clinic
Toronto General Hospital*

Glaucoma Clinic in Buffalo

Since the origin of the Glaucoma Clinic in the Buffalo Eye & Ear Hospital early in 1947, it has received 106 new patients, of which 58 are active and 48 inactive. Of this active group, 14 entered in 1947; 11 in 1948; 9 in 1949, and 24 in 1950. The total number of visits in 1947 was 148; in 1948 there were 150 visits; in 1949 there were 130 and 61 research gonioscopic; and in 1950 there were 250 and 98 gonioscopic.

The clinic now meets on alternate Wednesday mornings from 9:00 to 12:00, as we found we crowded the regular Wednesday afternoon eye serv-

ice and overtaxed our nursing staff when the meetings were held at the same time. Meeting in the morning also allows the resident more available time for studying glaucoma cases.

Personnel and Procedure

Clinic personnel includes: (1) clinic chief; (2) clinical assistant; (3) nurse; (4) clinical technician; (5) social and clerical worker. The clinic chief has supervised the work of the clinic, established the routine and undertaken the responsibility for the examination of the patients, and has in addition originated a small research schedule.

The clinical assistant is the current resident physician who has assisted in the medical examinations and performed the special provocative tests.

Since the advent of morning clinic there has always been at least one nurse, and occasionally two. The nurse establishes order among the patients; organizes the charts for the doctor; takes the vision; gets the patient on the table and into the dark room; instills drops for tension and gonioscopic examination; keeps the tonometer and gonioscope clean; and arranges future appointments.

The clinical technician is ably trained in taking fields of vision. At the present time special appointments are necessary for these, although perhaps at a later date it will be possible to take them during clinic time. Such procedure would offer better continuity of follow-up as well as cut down the number of visits each patient has to make.

The social and clerical worker receives the patient, obtains his chart and turns this over to the nurse, then later makes the future appointment.

She maintains the files, secures requested data and does the necessary social contacting.

Types of Patient

The clinic procedure is arranged to handle three types of patient: new, return, and research. A new patient is one referred to the Glaucoma Clinic from the eye staff for the first time but who may have been treated in regular clinic. On the first visit, past medical history, visual acuity with and without glasses, tension, ophthalmoscopic examination, biomicroscopic examination, and gonioscopic study are made by the clinic chief. Field studies have sometimes already been done or may be done at this time; if not, they are ordered. When visual acuity does not conform to the field-of-vision findings, an attempt is made to find the cause; and if none is found a recheck of the refraction is ordered.

Frequently, if the patient is already using miotics and fundus studies are not obtainable, the description is taken from the regular clinic chart when it is present. Unfortunately this is not always the case and then the question of mydriatics arises. They have been used cautiously when field studies have been unreliable. These are recorded on the Glaucoma Clinic chart and a diagnosis is made in clearly established cases; if not indicated, provocative tests are ordered. For patients showing a wide-angle gonioscopic picture, the water provocative test is done; for a narrow-angle picture, the dark room test; and for questionable angle detail, both are done.

At the time of the second visit the result of the provocative tests and the field information will be noted on the chart so that a diagnosis can be made.

If medication is needed and has not already been ordered, the prescription is given. If there is a question of surgery, it is noted. The patient is then given an appointment to return to his regular service for consultation. When referring the patient back to the attending physician, a progress report is noted on the glaucoma chart. The attending physician then has complete information on the patient and can communicate his impressions and preferences to the clinic chief by a note on the clinic chart. This synchronizes the care of the patient, whereas a verbal comment to the resident or to the patient might be overlooked.

After this routine has been completed, the patient then becomes an "old" or "revisit" patient. He is seen at regular intervals of usually 4 to 6 months, but oftener as needed. Visual acuities are recorded, tensions taken, and an evaluation of the results is made with the resident physician. Field studies are ordered at six-month intervals, or, as indicated in individual cases, changes in medication and periodic gonioscopic examinations are made. When a patient's tension remains elevated or his field of vision decreases, a progress note is recorded on the glaucoma chart and he is returned to his service for consultation.

Summary

Based on the first three years' experience, the following procedures have been approved in regard to several problems:

It was decided that the many hopelessly blind patients will be returned to external clinic for follow-up and will be seen in Glaucoma Clinic only yearly for record purposes.

The Welfare patients who need a new prescription before their appointment date in Glaucoma Clinic will be seen in either clinic merely for receipt of prescription, but no examination need be done unless indicated.

New glaucoma patients seen in external clinic will not be given miotics until after they are seen in Glaucoma Clinic unless the attending physician considers it imperative, and under this circumstance, a detailed fundus description will be recorded prior to treatment.

Chronic glaucoma patients will be seen regularly in Glaucoma Clinic and referred back to the attending physician when there is a question of change of treatment. If any attending physician prefers to see his patient at more regular intervals, he need only state his preference.

When a patient is referred to the attending physician, the physician should record his conclusions on the external chart so that both clinics will be synchronized. If there is any ambiguity in the records, or divergence of opinion, it is suggested that a conference be held with the chief of the Glaucoma Clinic and the director of the Eye Department. Suggestions or questions concerning the various phases of operation of the clinic may also be discussed similarly.

It was generally felt that the Glaucoma Clinic has been successful in aiding the attending physicians and resident, so that the best service can be rendered the patient.

K. ELIZABETH OLMSTED, M.D.

*Chief, Glaucoma Clinic
Buffalo Eye and Ear Hospital and
Wetlaufer Clinic, Buffalo, N. Y.*

MEDICINE AND SOCIAL WORK—Generally speaking, it appears that the profession of social work can borrow more from the field of medicine than from any other profession. Social workers learn from medicine its caution and meticulousness in both diagnosis and treatment and its very real respect for the effect of its professional actions on the life of the patient.—“Social Work: Its Base, Skills, and Relation to Other Fields,” by Jane M. Hoey (Director, Bureau of Public Assistance, Social Security Administration), in *Social Casework*, Volume XXXI, Number 10, December, 1950, p. 403.

Alfred Noyes, who has suffered visual difficulty, says of this poem:

"It is written with a certain amount of inside knowledge, owing to the condition of my own sight, and it occurs to me that it may be of some help to the many thousands who need a word to live by."



JOURNEY BY NIGHT

A Blind Man's Prayer by Alfred Noyes

Thou who never canst err, for Thyself art the Way;
Thou whose infinite kingdom is flooded with day;
Thou whose eyes behold all, for Thyself art the Light,
Look down on us gently who journey by night.

By the pity revealed in Thy loneliest hour,
Forsaken, self-bound and self-emptied of power;
Thou who, even in death, hadst all heaven in sight,
Look down on us gently who journey by night.

On the road to Emmaus, they thought Thou wast dead,
Yet they saw Thee and knew in the breaking of bread,
Though the day was far spent, in Thy face there was light.
Look down on us gently who journey by night.

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Highlights of 1951 Meeting

More than 500 delegates from all parts of the United States attended the 1951 annual conference of the National Society held March 28-30 at the Hotel New Yorker. The conference program featured talks on: the latest developments in ocular research, visual needs of the school child, industrial vision programs, work of the voluntary agencies, and projected plans of the federal government in sight conservation.

Mason H. Bigelow, president of the National Society, opened the conference by pointing out that so far as good vision is concerned, most Americans today would be better off as hunters, mountain climbers or cowboys.

They'd certainly be bothered less often by eyestrain because they wouldn't have to stare all day at nearby objects—a job which our eyes were never built to do, said Mr. Bigelow.

He told the conference: "Before 1890, the majority of our population was engaged in farming or other outdoor occupations. Most people rarely used their eyes for doing close work. They seldom had to read the small print on a typewritten sheet of paper. They didn't spend eight to ten hours a day reading auditor's reports. Nor were their evenings spent watching a movie or television.

"Today these and similar tasks are normal routine for most of us. But

they're not normal tasks for our eyes. Our eyes are made to see things at a distance. When forced to look long at nearby objects, our eyes become tired—or as we say—strained."

Dr. Franklin M. Foote, the Society's executive director, told the conference that visual defects are robbing America of seven per cent of her military manpower as well as hobbling the production efforts of up to 40 per cent of her industrial manpower.

He said that "selective service boards during the last war rejected a total of 273,000 men—seven per cent of those examined—because of visual defects. These men represent the enlisted men for 20 infantry divisions." He added that "spot checks indicate that subnormal eyesight keeps 25 to 40 per cent of workers below normal production."

Eyes at School

At the opening session on the visual needs of the school child, Mrs. Dorothea di Pretoro, head of New York City's Bureau for Education of Visually Handicapped, pointed out that in New York schools the partially seeing child is separated from his normal-sighted schoolmates only when he must do close work with his eyes. "Children in the lower grades spend about one-third of the day in the regular classroom," she revealed, "while the children in the upper grades may

spend more than half the school day with their sighted classmates."

The wearing of goggles and other safety equipment by all students in high school shop courses ought to be standard procedure, John L. Hopkins, superintendent of the Board of Education at Hastings, New York, reported. Eighteen months ago the wearing of safety glasses was made a requirement for all students in metal and wood shops at Hastings High School—the first school in the United States to follow the example of industry in requiring safety glasses. Since that time, said Dr. Hopkins, there has not been a single eye injury among students.

Research on Eye Diseases

Medical science is keeping more Americans living longer than ever be-

ACTH AND CORTISONE

ACTH and cortisone offer new hope for the treatment of sympathetic ophthalmia (the loss of vision in one eye that sometimes occurs following serious injury to the other eye), according to Dr. John M. McLean, attending surgeon in charge of Ophthalmology, of the New York Hospital-Cornell Medical Center.

The drugs also "give promise of widening the possibilities for successful corneal grafts," Dr. McLean reported at the annual conference. He added that ACTH and cortisone have been found to be "useful in treating certain inflammatory conditions of the eye," but "have no value in treating cataracts, primary glaucoma, and degenerative diseases of the eye."

fore, but researchers must now discover how to make these additional years more healthy, Dr. William L. Benedict, executive secretary-treasurer of the American Academy of Ophthalmology and Otolaryngology, told the conference, pointing out that the American public spends more money on eye cosmetics than it does on research against blindness.

Dr. Benedict, serving as chairman, opened a discussion on eye research during the afternoon session on March 28.

Primary glaucoma is now the Public Enemy Number One of medical research in the war against the blinding eye diseases, Dr. Eugene M. Blake, professor of ophthalmology at Yale University, said as he discussed the latest theories on "the mystery disease of ophthalmology" which is robbing the sight of 800,000 Americans—none of whom know that they are going blind.

To discover the cause of primary glaucoma, said Dr. Blake, "a twofold attack is necessary. We must study the eye itself . . . and we must also study the individual whose eyes have developed the disease. . . ."

Studies of a wartime poison gas led researchers to the discovery of D.F.P., a drug which helps to control glaucoma, Dr. Irving H. Leopold, of Philadelphia, pointed out. "Interest in the fluorophosphates was stimulated . . . by information obtained from war prisoners indicating that Germany had prepared quantities of an alkyl derivative of fluorophosphoric acid for possible use as a war gas. It was probably the nerve poison about which rumors were current at the time."

Some derivatives of the fluorophosphates were studied by Allied re-

searchers, continued Dr. Leopold. They noted that these derivatives constricted the pupil of the eye for long periods of time. This was especially true of a derivative called di-isopropyl fluorophosphate, which was labelled D.F.P.

"Following the initial studies," Dr. Leopold continued, "it has been shown this agent (D.F.P.) will lower intraocular pressure . . . in eyes with glaucoma; it will (also) lower intraocular pressure in some eyes with glaucoma which have not been successfully treated by other means."

Basic medical and biological research is "fully as important" as research on specific diseases, Dr. W. H. Sebrell, Jr., director of the National Institutes of Health of the U. S. Public Health Service, stated as he outlined plans for increased research on prevention of blindness.

Dr. Sebrell discussed the Institute on Neurological Diseases and Blindness, one of the new National Institutes (of which there are seven dealing with specific health problems) created last year by Congress.

He revealed that in the new budget now being considered by Congress, "new funds totalling \$800,000 for support of research grants and training in the neurological and blindness fields have been proposed." Dr. Sebrell emphasized that these funds will be devoted to prevention, rather than care and rehabilitation for those already stricken with blindness and other diseases.

Vision Programs in Industry

The morning session on March 29 was devoted to talks on industrial eye care. The session was opened by Dr. Leonard Greenburg, Executive Director of the Division of Industrial Hy-

giene and Safety Standards of the New York State Department of Labor.

He told the delegates that a good industrial vision program will pay a financial return to management on two counts—by increasing production and by reducing compensation payments for eye injuries.

Russell N. Crosby, supervisor of safety and claims for the Berwick, Pa., plant of the American Car and Foundry Company, urged management to give the responsibility for safety to the foreman because the attitude of the foreman toward good safety habits will often determine the individual worker's attitude.



MASON H. BIGELOW (*left*), President of the National Society, greets two of the guests at the conference dinner: LANNY ROSS, singing star of screen and radio; and KATHARINE FISHER, Director of Good Housekeeping Institute.

Dr. Herman Sager, optometrist, who is supervisor of eye service for the Sperry Gyroscope Company, reported that during the first seven years of Sperry's eye safety program, "not one eye has been lost in our machine shops and foundry, and not one serious eye injury has occurred resulting in partial loss of sight."

But during the nine-month period before the program was started, he

RETROLENTAL FIBROPLASIA

Dr. Algernon B. Reese, Clinical Professor of Ophthalmology, College of Physicians and Surgeons, Columbia University, reported on the use of ACTH in treating retrolental fibroplasia, at the annual conference.

A summary of his talk follows:

"Retrolental fibroplasia is a blinding disease affecting both eyes of 20 to 25 per cent of premature infants with a birth weight of 1,000 to 1,500 grams (2 to 3 pounds). The lower the birth weight the higher the incidence. The active phase of the disease is over by three months of age and is usually followed by irrevocable blindness.

"Retrolental fibroplasia is either a new disease, or a sharp increase in an old disease. In past years the number of premature infants was so few that the condition, if it existed, was not picked up. But now with a substantially greater number of prematures being saved the disease is becoming a serious problem. As greater numbers of prematures are saved from death, the cases of blindness due to retrolental fibroplasia will increase—unless a successful method of treatment can be found. . . .

"As to what this proper method of treatment is, no one yet has the final answer. However, we are very encouraged so far by results obtained with the use of ACTH.

"The theoretical basis for the use of ACTH is as follows:

"Some premature babies are found to have an inadequate supply of cortical steroids; and it would appear that the child depends on getting these steroids from the mother during the last three months of pregnancy. ACTH stimulates the adrenal cortex of the infant to produce the needed steroids, and herein lies the hope that this drug may lead the way to a successful treatment.

"Whether ACTH or some other method of treatment is the final answer, I am confident that medical science will ultimately find a solution to this problem. And when that day comes it will mean new work for prevention of blindness agencies in applying this sight-saving knowledge. In our experience we have found that low-weight premature infants must be examined each week until they are three months old, to be sure that retrolental fibroplasia is picked up at the very start of its development. So far there appears to be no successful way of dealing with the disease once it is fully established."

pointed out, "a total of six eyes were lost and 56 serious eye injuries were reported, many resulting in partial loss of sight."

The use of ACTH, cortisone, and the antibiotic drugs has made a "tre-

mendous improvement during the past 10 years" in the treatment of eye wounds, said Dr. Edmund B. Spaeth, of Philadelphia.

Dr. Spaeth pointed out that these drugs have been shown to be effective

in treating sympathetic ophthalmia—loss of vision in one eye which sometimes occurs following serious injury to the other eye. He added that the antibiotics—streptomycin, terramycin, etc.—now make the danger of secondary infection following an eye injury almost inconsequential.

Dr. Spaeth revealed that in a survey made in Philadelphia of accidents which resulted in the loss of 50 eyes, it was found that 27 were lost needlessly.

The importance of eye examinations after the age of 35 was stressed by Reginald E. Gillmor, vice-president of the Sperry Corporation.

Mr. Gillmor cited these figures:

1. In a sample survey of 300 workers over the age of 38 brought into the Sperry eye clinic for a checkup, 68 never had had their eyes examined. Of these 68, three fourths needed glasses.

2. Of the remaining 232, added Mr. Gillmor, two thirds needed glasses or a change of glasses.

These figures, he said, point up the fact that people just won't seek eye care until their eyes begin to trouble them seriously.

During the afternoon session on March 29, a panel discussion was held on the rôle of the government agency in prevention of blindness. Dr. Carl E. Rice, consultant in ophthalmology for the Office of Vocational Rehabilitation of the Federal Security Agency, opened the discussion. Excerpts from his talk:

"In some 10 to 15 per cent of those who apply for pensions for the blind, recommendation has been made by the examining ophthalmologist for surgery to improve or restore sight. For example, many applicants are totally unaware that in most cases of cataracts sight can be restored by surgery. In a study made in 1940 of

20,000 blind pensioners, cataract was the leading single cause of blindness—19 per cent—and yet sight can be restored by surgery in up to 90 per cent of the cases where there is no other pathology present.



Speaker at the Friday luncheon was Dr. E. J. STIEGLITZ from Washington, D. C. He is shown here with National Society officers, reading left to right: Dr. WILLIAM L. BENEDICT, Vice President; Dr. STIEGLITZ; Dr. CONRAD BERENS, Vice President and Chairman of the luncheon meeting; Mrs. WINIFRED HATHAWAY, retired Associate Director; and MASON H. BIGELOW, President.

"Aid to the blind is only one phase of the work of government agencies in this field. (A total of 100,000 persons are now receiving federal or state pensions as blind persons.) But the fact that so many persons who consider themselves totally blind can actually have enough vision restored to be able to work, is a measure of the tremendous amount of public education there is yet to be done on the facts about eye health. Many State Welfare Departments, Commissions for the Blind and Vocational Rehabilitation agencies are providing medical services to restore or improve sight in such individuals. . . ."

At the conclusion of this session, the delegates heard a report from Colonel Victor A. Byrnes, of Randolph Field, Texas, who told of the effects of an atomic bomb in an average American

COLOR-BLIND

A young husband's failure to know he was color-blind led him into the divorce court, Mrs. Charlotte-Ann Breed, executive secretary of the Grand Rapids (Michigan) Association for the Blind and for Sight Conservation, told the annual conference as she stressed the importance of eye examinations in detecting hidden visual defects.

Mrs. Breed described how her agency helps test the eyes of school children to discover ocular defects. Hearing of this work, a young man came to see her, said Mrs. Breed, urging that she pay particular attention to finding color-blind children, so that those youngsters might be made aware of their handicap.

No one had ever detected the young man's color-blindness when he was a boy. "He felt," said Mrs. Breed, "that color-blindness had shaped his life and had caused him tribulations. He gave as a final concrete example his wife's suit for divorce. His color-blindness was quite obviously the cause, for, had he been able to see the color red, he would have known on several occasions that he had lipstick on his collar."

city. Colonel Byrnes' paper was delivered by Dr. Conrad Berens, of New York.

Describing the need for emergency care of injured eyes in the event of atomic disaster, Colonel Byrnes revealed that an A-bomb blast in an average American city would kill or injure about 90 per cent of the city's



The highlight of the three-day conference was the dinner address by DR. LEONARD A. SCHEELE, Surgeon General of the United States. Here DR. SCHEELE (right) is talking with JACK BERCH, radio entertainer, who is Chairman of the National Society's Radio Education Committee.

doctors and nurses. Colonel Byrnes based his figures on the result of the Hiroshima bombing.

Local Sight-Conservation Programs

On the morning of March 30, representatives of local prevention of blindness agencies discussed their work.

Mrs. Ben Humphries Gray, executive secretary of the Illinois Society for the Prevention of Blindness, described how her agency—by bringing optometrists and ophthalmologists together in a joint professional committee—had worked out a uniform program for testing the eyes of children in Illinois schools. This program has the wholehearted support of both ophthalmologists and optometrists.

Mrs. Gray said:

"In Illinois, it has been found that at least 50 per cent of all children seeking eye care seek the services of an optometrist. It is further agreed by authorities that in 30 per cent of all cases needing eye care, some disease exists which requires the attention of the ophthalmologist.

"Through the efforts of the Illinois Society for the Prevention of Blindness, a coordination of optometric and medical eye care services has been brought about to assure proper eye care for all Illinois school children.

"Optometrists and ophthalmologists have developed standards of referrals and also serve on committees to give professional guidance and direction to visual screening programs in the schools. These joint committees of ophthalmologists and optometrists warn parents that proper eye care can never be achieved if they allow themselves to be hoodwinked by lurid advertising and the bargain sale of glasses."

Mrs. Helen Curtis Demary, executive director of the District of Columbia Society for the Prevention of Blindness, told how her organization makes use of volunteer workers. These men and women, for example, were used to conduct vision tests of the entire parochial school population of 9,000 children. Young women from the Junior League have also helped in testing the eyes of preschool children;

some have become so adept, said Mrs. Demary, that they need very little supervision.

The main speaker at the annual conference was Dr. Leonard Scheele, Surgeon General of the United States, who addressed the dinner meeting held on Thursday, March 29, at the Hotel New Yorker.

Dr. Scheele pointed out that the spearhead in the battle against disease has shifted from the attack on infectious diseases to combating chronic diseases associated with the aging process.

"Success in reducing blindness due to infections and mechanical injuries," he said, "has shifted the emphasis to such conditions as cataract, atrophy of the optic nerve, glaucoma and corneal disease. We have learned to cope effectively with the most acute public health problems of 50 years ago; but we are not dealing adequately with the major problems of today. . . ."

BACK NUMBERS WANTED.—Once again the National Society for the Prevention of Blindness is appealing to REVIEW readers for any of the following issues for which they have no further use: Summer and Fall issues, 1946; Spring and Winter issues, 1949; and Winter, 1950.

Future issues, beyond the subscription expiration, will be sent to readers returning any or all of the issues listed above.

Around the World

Finland

According to a report in *Revue Internationale du Trachome*, No. 4, 1950, the Medical Administration of Finland conducted a study on the incidence of trachoma in that country in 1948, based on information regarding the number of patients with trachoma consulting: (1) eye specialists; (2) ophthalmic hospitals and outpatient departments; (3) general practitioners; (4) prison administrators; (5) medical department of the general staffs of the army, navy, and air force, as well as those responsible for examination of recruits; and (6) those responsible for the mass examinations in schools, factories, and poor law institutions.

On the basis of the information obtained, the incidence of trachoma in the whole country in 1948 was estimated at 18,000. The corresponding figures obtained in studies made in 1908 and 1924 were 100,000 and 70,000, respectively. The great decrease in the incidence is attributed to social improvements, such as more eye physicians, better-trained public health and social work officials, better general hygiene and health education, and, of course, the general use of the sulphonamides, found comparatively recently to be effective in the treatment of trachoma.

Formosa

Reporting on the activities of the mission to Taiwan, United Nations

International Children's Emergency Fund, a representative of that organization writes:

"A year ago when I made a study of maternity and child health on the island for UNICEF I reported that there is a high percentage of trachoma among the 900,000 children in the primary schools. Various methods of treatment are being used, ranging from the Japanese daily water spray eye-baths to the use of phenol and streptomycin. There does not yet seem to be any agreement among the medical men as to the best treatment. Fifty per cent of the school children are affected, but fortunately 95 per cent of the cases are mild. The severe cases are often painfully treated by using fish-scale brushes to scrape the trachoma granules from the eyelid, after novocain has been injected. I am sure that continued research will produce some better and less painful treatment, but I am speaking as one whose lay opinion will have to be thoroughly checked by the ophthalmologists.

"There are a number of Japanese-trained eye men on the island, some of them quite good. As you probably know, there are on Taiwan a total of about 3,700 doctors and 800 nurses—to care for the health needs of between 7,500,000 and 8,000,000 people—150,000 of whom in aboriginal tribes in the mountains and not easily reached with medical services. There are probably 25 good-size (100 or more beds) hospitals and about 200 health sta-

tions. By contrast with the China mainland and most other places in Asia, Taiwan is far advanced in public health, although backward in what we call public welfare. Some of the MDs who are here from the mainland, and the present Commissioner of Health, Dr. C. H. Yen, are the best China has produced in the past thirty years. Many are graduates of Harvard, Columbia, Edinburgh and a number of other outstanding medical colleges abroad."

Palestine

Under the direction of Professor Giambattista Bietti of Parma University, Italy, one of the world's outstanding authorities on trachoma, the first large-scale, scientific control campaign for treating this disease with new antibiotics was started December, 1950, in several Eastern Mediterranean countries caring for Arab refugees. Trachoma is widely prevalent in Eastern and Southern Mediterranean countries, especially among rural populations. About 80 per cent of the people in some districts suffer from this disease, which often results in complete blindness. Dr. Bietti is carrying on this work under the auspices of the World Health Organization, whose program is expected to yield results of considerable consequence, not only for immediate beneficiaries of the new treatment, but also in setting up scien-

tific comparisons for the effectiveness of the new drugs in the control of trachoma.

Scotland

The W. H. Ross Foundation (Scotland) for the Study of Prevention of Blindness reported among its 1950 projects studies on the following subjects: first aid treatment of eye injuries; treatment of septic corneal ulcer with powdered sodium sulphacetamide; the use of color in coal mines; and prevention of welder's flash. In the study on first aid it was found that little headway had been made with the use of protective devices, and there has been no reduction in the number of eye accidents in recent years. Safety devices have been provided but employees are careless about their use.

South Africa

Helen Keller is spending several months in various centers of South Africa in the interests of expanding not only work for the blind throughout the world, but also in preventing unnecessary blindness. Miss Keller, who is an honorary vice president of the National Society for the Prevention of Blindness, has always emphasized the importance of sight conservation. Among the larger centers which she will visit are Capetown, Durban and Johannesburg.

Note and Comment

Principles for Vision Testing in Industry

The following basic principles, objectives and essentials to be met by manufacturer, distributor or any other representative for introducing an effective and ethical vision testing program to industry, have been adopted by the Joint Committee in Industrial Ophthalmology, and endorsed by the Council of the American Academy of Ophthalmology and Otolaryngology:

1. The manufacturer, distributor or any other representative to recommend only acceptable and proper instrumentation for the testing of visual skills.

2. The presentation of currently acceptable visual testing procedures shall be made to the medical director and/or professional eye consultant of plant by the salesmen.

3. Insistence in sales approach, that interpretation, evaluation of records and all referral and correction programs, are the responsibility of the medical director and/or professional eye consultant.

4. The presentation of the over-all subject of instrument testing of visual skills in industry shall be made to local professional groups and societies whenever at all possible.

5. At no time shall a salesman of such instrumentation indicate to lay personnel of industry that professional guidance is not necessary.

6. Any job standards and/or "profiles" presented to the industry must be based on research available both to

the industry purchasing the instrument and/or the professional eye consultant.

7. When an instrument as such is sold outright to the company without an additional continuous service, the price of the instrument should be for the instrument alone.

It would be desirable that instrumentation be sold outright to plants that have professional eye consultants.

8. The attitude and bearing of any salesman asking for an interview with a professional individual shall be in line with accepted ethical standards.

National Science Foundation

Alan T. Waterman, Ph.D., one of the country's leading scientists, has been named director of the recently established National Science Foundation. The purpose of the Foundation is to promote basic research and education in the sciences, including medicine. A sum of \$225,000 is available for immediate use, and the law provides for an appropriation of \$15,000,000 annually after the first year.

Among the first tasks of the Foundation will be the establishment of staffs for the four major divisions, including a medical research division. Congress has authorized the Foundation, among other things, to initiate and support basic scientific research in the mathematical, physical, medical, biological, engineering and other sciences by making contracts, as well as grants or loans; to award scholarships

and graduate fellowships in the various sciences; to evaluate scientific research programs of federal agencies and correlate the Foundation's scientific programs with those of individuals and of public and private research groups.

Insurance Company Issues Sight-Saving Message

The Employers Mutual Liability Insurance Company of Wisconsin has circulated the following significant message on guarding eyesight to industrial editors in their policyholders' plants which bears reading by everyone concerned with sight conservation:

GIVE US VISION TO GUARD OUR SIGHT!

Try to imagine it! The doctor comes out of the examining room with your child. He is gently joking with her and her eyes gleam with merriment. But when she is ushered safely out of ear-shot he turns to you with painful hesitancy: "I'm—I'm sorry. Her eyes—it's malignant cancer. We've got to take her eyes or she'll die." Your blood turns to ice. In the outer room you hear her excited voice: "Mommy, way up here you can nearly see the whole world from the window!" And each word slashes through your heart.

You read of the Georgia parents who recently experienced such anguish. And you rejoiced with them when the Mayo Clinic later announced: "Not cancer. Her eyes will be all right."

Two Wisconsin parents were recently torn by this same agony, but their story has no happy ending. It *was* cancer; their two-year-old girl had to exchange vision for life. After the operation the bandages were taken from the empty sockets. And then the

terrible silence of the room was broken by her childish sobs: "I can't wake up, Mommy. I can't wake up."

Through a child's eyes, the world is a vision of magic—sparkling—fresh with beauty, adventure, promise. "The world is so full of a number of things. . . . I'm sure we should all be as happy as kings." To see all these exciting things, to revel in the sight of them for just a little while, then have it all vanish forever! Cruel fade-out, like the bubble-burst of a wondrous dream. And a bewildered child who had gazed in wide-eyed, tireless wonder about her, now lives in a world of hollow sounds and sensations, with eternal darkness for a playmate.

The tragedy of it! Yet how many of us will go off to the job on the morrow and knowingly or unknowingly gamble our own priceless vision? Foolishness? No, it's far worse than that. Think again about those frightened sobs: "I can't wake up, Mommy. I can't wake up." Think until the words tear into your very core!

Why do so many of us lack the *vision* to guard our sight? Why do so many face disaster unprotected . . . until one day they find themselves with the same cry of terror in their hearts: "I can't wake up—I can never again wake up!"

Eye Resources in Rural Areas

Following the publication of "Family Utilization of Health Resources in Rural Areas," in the February 1, 1951, issue of the New York State Journal of Medicine, Olaf F. Larson, Ph.D., has provided the Society with additional information on eye hygiene practices which was not included in the original article by Dr. Larson, Donald G. Hay, Ph.D., Walter C. Levy, M.D.,

and William E. Mosher, M.D. Regarding the medical eye aspects, Dr. Larson, who is professor of rural sociology at Cornell University, writes:

"In the survey of 533 rural households in Cortland and Oswego counties in ascertaining the use of health services for individual family members we had the question, 'Do you wear glasses?' and, 'If so, did you get them by (1) prescription (2) other (specify)?' The report on this study, which is as yet unpublished, carries the following statement: 'Approximately 2/5 of all individuals one year of age and over in both counties wore glasses. 9/10 (89.1%) of those 45 years of age and over in Cortland and 4/5 (80.8%) of those in Oswego wore them.' Women more frequently than men in each age group wore them. Farm individuals in each group were lowest in proportion wearing glasses as compared to rural residents and villages.

"The great majority of wearers of glasses were reported to have gotten them by prescription. Although the number of persons reported as wearing glasses other than by prescription is too small to be statistically reliable for internal analysis, this group was made up almost entirely of persons 45 years of age and over, had a greater representation among males than females and a greater representation among country than among village residents."

A similar study is being carried on at the present time in Livingston and Chautauqua counties.

Medical Residency and Sight Conservation

For the past quarter of a century the National Society for the Prevention of Blindness has been active in promoting medical and social service for eye pa-

tients in hospitals, as well as through prevention of blindness services. In the training of residents there is unique opportunity to expand the functions of the medical-social eye worker. It is therefore of special interest that the Veterans Administration has issued a technical bulletin, "The Social Caseworker's responsibilities in a Medical Residency Training Program," by Ethel Cohen, Special Consultant, Department of Medicine and Surgery. The bulletin discusses medical-social ward rounds, prerequisites for participation by social service in a medical training program, the nature of social casework in a medical setting, and closes with the statement:

"When casework practice is thus clearly focused on the social factors in the health situation, the clinical staff, administrators, and others will more readily identify the relevance of social casework to the care of sick people. The doctor's awareness of social casework and his acceptance of its validity as a professional service will come about through his own direct day-to-day observation of social help given to patient after patient. Thus, the recognition and acceptance of a service increases its effective use and this, in turn, results in improved total care for the patient and greater satisfaction for the caseworker."

Hard Plastic Lenses Developed

The Joint Committee on Industrial Ophthalmology of the American Medical Association and the American Academy of Ophthalmology and Otolaryngology are calling attention to the recent development of hard plastic spectacle lenses made from a highly scratch-resistant resin called Armortlite. The special advantages in using

this plastic for lenses are: (1) it is half the weight of glass; (2) has four times its resistance to fogging; (3) has five times the impact resistance of case-hardened safety glasses; (4) has ten times the resistance to welding spatter; and (5) has forty times greater scratch-resistance than previous optical plastics.

Such plastic lenses would be especially useful in cases of one-eyed individuals; for children—especially where weight as well as safety is a factor; for policemen, firemen and detectives to eliminate the danger of glass splinters in any rough-and-tumble situation; for laboratory workers where chemical or explosive hazards are present; for prescriptions that would be very heavy in glass lenses—high minus, high cylinders, and high plus, including cataract cases; for sports use in golf, horseback riding, baseball, etc., where ordinary glass would be dangerous if struck or splintered.

Anti-Vivisectionists Lose Again

Passage of a "pound law" bill was enacted by the South Dakota Legislature and signed by the Governor on February 15. The law, which becomes effective on July 1, provides that animals needed for medical experimental purposes may be obtained under license issued by the State Department of Health from establishments maintained by municipalities for the impounding, care and disposal of animals seized by lawful authority.

Institutions that may apply for such license are schools and colleges of agriculture, veterinary medicine, medicine, pharmacy, dentistry or other educational or scientific institution properly concerned with the investigation of, or instruction concerning the

structure or functions of living organisms, the cause, prevention, control or cure of diseases or abnormal conditions of human beings or animals.

The State Department of Health is empowered to adopt rules and regulations necessary to insure the humane use of animals in such experimentation, with the right to inspect or investigate institutions having licenses or applying for license to secure experimental animals.

The South Dakota action brings to a total of three, states that have recently passed similar legislation. Thirty-one communities also have effected policies concerning the disposal of unclaimed impounded animals for medical use.

Legislation is now pending in seven other states. Among them is New York State, which has under consideration the Metcalf-Hatch bills providing for the use by science of 450,000 unclaimed stray dogs and cats annually killed in public pounds. The bills provide that unclaimed, unwanted strays normally killed in public pounds can be requisitioned by the New York State Department of Health and by the Department of Health of New York City for use in approved scientific laboratories.

Another feature of the Metcalf-Hatch bills is a stiffening of the requirements for the approval of laboratories in which studies involving living animals are conducted. The bill states, in part: ". . . rules shall include requirements that all animals be kindly and humanely treated, properly fed and suitably housed. . . . The state commissioner of health or his duly authorized representative shall inspect such laboratories or institutions to assure compliance with such rules and standards. Each such approval may

be revoked at any time for failure to comply with such rule. . . ."

Lack of Light Causes Accidents

The need for proper street lighting to curb night traffic accidents, which account for two thirds of urban traffic deaths, is evident in reports just released by 48 cities, says the National Street and Traffic Safety Lighting Bureau.

Of the 140,833 total accidents reported, 41 per cent occurred in the dark. Moreover, of the 753 accidents which were fatal, 64 per cent happened during darkness. All fatal accidents were reported occurring during darkness by 21 of the 48 cities.

Lack of enough light to see vehicles, objects, and pedestrians in time to stop or avoid hitting them is the chief cause of the higher night fatality rate, illuminating engineers say. They report 18 lighting improvements which have cut night deaths 93.6 per cent. A reduction of only 50 per cent in fatal night accidents, lighting engineers point out, would save approximately 10,000 lives per year.

Development of State Committees

Working with representative state groups, the National Society for the Prevention of Blindness has in recent months stimulated the formation of committees in California, Colorado, Indiana, Michigan, Missouri, Texas, and Wisconsin. In California both a lay committee and a professional advisory committee have been formed, with Governor Earl Warren as honorary chairman and Mrs. Frederick J. Hellman of San Francisco as chairman. The Indiana Committee has as its honorary chairman Governor Henry F. Schricker and as chairman, W. A.

Jamieson. In the other states mentioned, committees are being formed and announcement will be made when the various chairmen have been appointed.

The Society has undertaken the organization of state committees in order to advance the nationwide attack against blindness through promotion of eye research, education and preventive services.

Ernst Fuchs Centennial

On Thursday, June 21, 1951, the University of Vienna, the Society of Physicians in Vienna, and the Viennese Ophthalmological Society will celebrate the 100th anniversary of the birth of the world-renowned physician, Ernst Fuchs.

Dr. Fuchs' name goes down in the history of prevention of blindness not only because he was a distinguished ophthalmologist, but because he wrote the comprehensive monograph on "The Causes and Prevention of Blindness" which was awarded the first prize offered by the Society for the Prevention of Blindness of London in 1884.

Leaders from all over the world have been invited to take part in the Fuchs centennial. Even those who may not be able to participate have reason to pause and pay silent homage to this great scientist. It was he who was responsible for spreading the knowledge of the Credé method, so important in the elimination of blindness from ophthalmia neonatorum, and in every sense of the word he may be looked upon as a pioneer in recognizing the social aspects of prevention of blindness. Dr. Fuchs was an early recipient of the Leslie Dana gold medal for his important contributions to saving sight.

Current Articles of Interest

Sight Saving, F. M. Foote, *Health News*, New York State Department of Health, October, 1950, Vol. 27, No. 10, pp. 3-9.

The family doctor, according to Dr. Foote, is in a key position to assist in sight saving, because he sees people of all ages upon the evidence of relatively early symptoms of organic disease, and can advise them on ways to prevent eye damage. The family doctor has opportunity to test expectant mothers for syphilis and gonorrhea, use prophylactic drops in eyes of the newborn, examine the eyes of children during general physical checkups, refer those with strabismus to an ophthalmologist, and familiarize himself with techniques in using the ophthalmoscope. The national program of promotion of eye research, educational activities and preventive services is outlined. "The work of the National Society is directed toward . . . bringing to bear the tremendous force of citizens groups, under sound scientific guidance, in order effectively to reduce the large proportion of blindness now known to be preventable."

Causes of Blindness in Maine, D. J. Clough, 2nd, *The Journal of the Maine Medical Association*, July, 1950, Vol. 41, No. 7, pp. 262-267.

Causes of blindness are reported among 292 applicants for Aid to Blind in Maine during the years 1946 through 1949. In order of frequency and by type of affection, principal causes were:

cataract, glaucoma, anterior uveitis, chorioretinitis, optic atrophy, pathologic myopia, retinitis pigmentosa, diabetic retinopathy, injuries to the eyeball, keratitis of all types, and senile macular degeneration. Leading known etiologic causes were prenatal factors, trauma, arteriosclerosis, diabetes and syphilis. Comparison with the 20-state federal survey revealed an unusually high incidence in Maine of affections of the choroid and retina. Among etiologic factors, diabetes and arteriosclerosis had a much greater incidence, while affections of the cornea and optic nerve and the etiologic causes grouped under infectious diseases were low for Maine, in comparison with the federal survey.

The Massachusetts Vision Test—Two Years in Fond du Lac, F. J. Cerny and J. Scheer, *Wisconsin Medical Journal*, October, 1950, Vol. 49, No. 10, pp. 907-908.

Fond du Lac Public Schools have been using the Massachusetts vision test since January, 1948, with the following results: in a 3,972 school population, 2,013 tests were given; 463 (22.9 per cent) failed; of these, 64.1 per cent consulted an eye doctor. Of the latter, 143 (48.9 per cent) needed help in the form of treatment, prescription, or change of glasses; and 8.04 per cent passed part I (which is equivalent to the old standard Snellen test given under good conditions), but failed in parts II or III. The authors

conclude that this illustrates the superiority of the Massachusetts vision test over the Snellen test alone; and that the Massachusetts vision test detects visual defects in persons who pass the Snellen test given alone.

Eye Defects Seen in Cerebral Palsy, G. P. Guibor, *The Crippled Child*, October, 1950, Vol. XXX, No. 3, pp. 4-6.

The ideal age at which to give glasses to cerebral palsy patients with subnormal vision is between six months and one year, says Dr. Guibor in his discussion of ocular deviations in the cerebral palsied. The ophthalmologist can determine visual defects when the patient is still a baby and prescribe glasses as needed. For crossed eyes in these patients, glasses, eye drops, covering the better eye, and exercises may improve the eyes so that glasses may be put aside at least part of the time. A dramatic case is cited in which treatment was begun in a six-months-old girl with less than 10 per cent of normal vision. By the age of seven she had 20/20 vision, and her tendency toward crossed eyes had almost disappeared. Based on the observation that crossed eyes occur in over 50 per cent of the cerebral palsied, Dr. Guibor advances the theory that crossed eyes may result from the same causes as does cerebral palsy—injury to or lack of development of the areas of the brain which control motor coordination.

Fifty Years of Ophthalmology in New York State, C. Berens, *New York State Journal of Medicine*, January 1, 1951, Vol. 51, No. 1, pp. 126-135.

Dr. Berens pays tribute to the individual ophthalmologists who have made significant contributions to opht-

thalmology over the past fifty years, and to the institutions and public health organizations which have cooperated closely throughout these years. In conclusion, he states:

"An historical review serves a most useful purpose in revealing how much modern ophthalmology owes to the early founders who laid the groundwork for future progress. It renews our respect for their work when we realize that many of the historical procedures and methods are still employed. But outstanding is the fact that the past, the present, and the future are all interdependent. The future of ophthalmology in New York State is most promising because of the fine groundwork which has been so well laid by the devotion to teaching and research of ophthalmologists during the past fifty years and because of the excellent caliber of the present group."

The Battle Against Blindness, W. B. Lancaster and F. M. Foote, *The Journal of the American Medical Association*, January 6, 1951, Vol. 145, No. 1, pp. 26-30.

The authors emphasize the importance of blindness as a major public health problem, and the need for everyone's help in the battle against it. Last year, \$125,000,000 was spent for care and services to the blind, while less than \$1,000,000 was available for research in the blinding eye diseases. Though activities for the blind are inadequate and should not be reduced, effort to enable persons to keep their sight should be increased, thereby reducing the number of unnecessarily blind. Causes of blindness and the problems of glaucoma and cataracts are reviewed; past and current progress

is described; and future needs are outlined. Citing the work of the National Society for the Prevention of Blindness, the authors conclude: "We believe that the American people will support a properly organized, well guided and forcefully presented effort to reduce blindness. In this work we shall need the help of every man and woman truly interested in promoting eye health for America."

Study of Vision Testing Procedures, M. H. Levine, M. D. Smith and J. S. Kitching, Division of School Health Services, Department of Health, Hamilton, Ontario, 1949-1950.

The authors report results of a vision screening program, covering 3,273 examinations of children in kindergarten and grade I. Of these, 16.3 per cent had refractive errors and muscle defects necessitating referral. Reports on 73.3 per cent of those referred and action taken showed that 83.2 per cent received immediate correction, 10.7 per cent were requested to return for further check, and in 6.1 per cent correction was not advised or further recommendation made. The authors indicate that a total of 375 hours were used in actual testing time by the ten professional operators, an average of about 6.9 minutes for each child. The cost of the examination was approximately 76 cents per child. Test standards and procedures are presented which, according to the authors, are simple, practical and inexpensive.

Preliminary Note on Study of the Refractive State, with Special Reference to Myopia, G. S. Pendse, V. M. Dan De Kar, and L. S. Bhavé, *A.M.A. Archives of Ophthalmology*, February, 1951, Vol. 45, No. 2, p. 168.

The data are based on the examination of a sample of 590 unselected school children in an "advanced community" in India. It was found that, for a given age, higher refractions are associated with shorter heights and that subjects with subnormal heights have higher (more hypermetropic) refractions, while subjects who are taller for their ages have lower (less hypermetropic) refractions. It appears from the data collected so far that refraction is determined mainly by factors concerned with body growth and that the factor of nutrition is secondary in the development of pathological myopia.

Method for Objective Investigation of Strabismus, E. Krinsky, *The Journal of the American Medical Association*, February 24, 1951, Vol. 145, No. 8, pp. 539-544.

The following conclusions are presented regarding an objective evaluation of strabismus:

"1. A flashlight and prism are adequate tools for studying the corneal light reflexes.

"2. The corneal light reflex, when studied in a controlled manner, is the only dependable landmark or guide for an objective evaluation of normal straight eyes, as well as of manifest strabismus.

"3. Accurate observation of the positions of the corneal light reflexes is essential in a study not only of ocular deviation but also of induced or spontaneous image responses.

"4. With the prism reflex test, based on the property of a prism to deflect a beam of light toward its apex, the amount of strabismus can be measured objectively.

"5. The corneal light reflex can be used to study the state of binocular balance, binocular position and binocular function."

Sunglasses—Facts and Fiction, Col. V. A. Byrnes (MC), *National Safety News*, January, 1951, Vol. 63, No. 1, p. 50.

In an effort to sift facts from half-truths concerning the use of sunglasses, the author points out that sunglasses are not worn to protect the eyes from damage but to protect against discomfort produced by sunlight. He defines two classes of people who are uncomfortable in sunlight: those who have eye ailments and those lightly pigmented or unusually light-sensitive. These groups can be fitted with proper sunglasses. The amount of light transmitted through the lens should not exceed 20 per cent for ordinary sunglass use. Most persons prefer about 15 per cent. No commercial sunglasses are adequate for looking at the sun. Looking at an eclipse without the special lenses required for this purpose will cause retinal damage. In his discussion of colored lenses, the author points out that these and colored windshields are dangerous in night driving and that lenses and windshields for use at night should be clear and clean.

Effect of Task-to-Surround Brightness Ratios on Visual Performance, R. L. Bieseke, Jr., *Illuminating Engineering*, September, 1950, Vol. XLV, No. 9, p. 555.

Mr. Bieseke describes the pilot study which was made to see what effect the task-to-surround brightness ratio might have on the performance rate of persons doing moderately

difficult visual work. Four test procedures were tried. The third of these, a four-hour fatigue test, showed variations of such magnitude that, if confirmed by further tests, would mean that the task-to-surround brightness ratio is as important to visual performance as the illumination level. No conclusions may be drawn because the data for each test were limited to a few observers. However, the tests have proved their value as a method of obtaining important data; and the author recommends their continuation.

Daylight in Classrooms—Multilateral Lighting, R. L. Bieseke, Jr., *Illuminating Engineering*, September, 1950, Vol. XLV, No. 9, pp. 558-559.

This report is the second on the study of practical techniques for good visual environments in classrooms, using daylight as the primary light source. The first covered unilateral lighting (using windows in only one wall); the present report covers bilateral and multilateral arrangements (using windows in more than one wall). Results of tests show that, with correlation of fenestration, light controls, decoration and seating, daylighting designs meeting recommendations of the American Standard Practice for School Lighting can be readily attained.

Put Light and Color To Work, C. E. Egeler, *Safety Maintenance & Production*, October, 1950, Vol. 100, No. 4, p. 28.

This author lists three essentials of a good lighting system: adequate light for the seeing task; minimum of direct and reflected glare; and, for comfortable seeing, background brightnesses

comparable to those on the task and its immediate surroundings. He discusses choice of color combinations, machine finishes, color of light sources, and functional uses of color; and he shows how the proper use of color and light will increase production, reduce accidents, and keep employee health and morale high. In conclusion, he states that conservation of employees' eyesight and health, cheerful and comfortable appearance of the work areas, and better morale are among the factors that indirectly affect production. This, and the humanitarian and employee-relation problems, are among the principal subjects on which plant officials are continually seeking new, practical and economically sound answers.

Planned Lighting, D. P. Caverly, *Safety Maintenance & Production*, November, 1950, Vol. 100, No. 5, p. 22.

Economy-minded men in industry are wise to make use of planned lighting, according to the author, who cites figures showing that only 2 per cent of the manufacturing industry's dollar goes into lighting; yet good lighting steps up production 1 to 5 per cent, cuts waste from 5 to 20 per cent, and prevents 1 out of 6 accidents. If the \$150,000,000 that industry now spends annually for accidents were cut down by one sixth, at least \$25,000,000 could be saved. Since the introduction of long-life fluorescent lamps, a consumer gets as much as 7 times more light for his fluorescent-lamp dollar than he did a few years ago—these lamps operate for 7,500 hours, or 3 times longer than previous fluorescent lamps and 10 times longer than 60-watt incandescent lamps.

Further, they remain bright and clean up to 5,000 burning hours. Mr. Caverly discusses other advantages of modern lighting, showing how it aids safety, maintenance and production.

The Use of Fluorescent Tubes, *Illuminating Engineering*, November, 1950, Vol. XLV, No. 11, pp. 719-720.

Recent fluorescent-tube developments have simplified making a choice. A warm quality white fluorescent tube makes possible an over-all atmosphere of warmth associated before only with filament bulbs. If an atmosphere more like daylight is desired, a cool quality white fluorescent tube can be used. When color rendition is important, the corresponding improved-color-rendition warm or cool lamp may be chosen. The latter is obtained at some sacrifice in efficiency of light production. In selecting fluorescent lighting it is advisable to consult a lighting designer to avoid selecting the wrong devices.

Parade of Lighting Progress, *Report of I.E.S. Committee on Progress—1949-1950*, A. Rodgers, *Illuminating Engineering*, January, 1951, Vol. XLVI, No. 1, Section 1, pp. 1-20.

The author selects and records a number of items of interest in the year's parade of lighting progress. These include statistics and predictions, light sources, materials, lighting equipment, lighting practice and lighting education. In the section on industry he points out that industrial lighting trends are definitely toward the provision of greater comfort and higher-quality illumination. In offices, both large and small, a considerable number of wall-to-wall luminous ceiling and louverall installations have been made.

School lighting is on an upward swing as evidenced by greatly increased interest in improvement of the seeing environment for school children.

Deficiencies of the Fat-Soluble Vitamins, J. B. Youmans, *The Journal of the American Medical Association*, September 2, 1950, Vol. 144, No. 1, pp. 34-45.

Vitamin A is the most important of the fat-soluble vitamins, so far as the eyes are concerned. The author points out that besides general limiting of growth, vitamin A seems to affect almost exclusively dark adaptation and the health of the epithelium. Vitamin A is needed for the adaptation of vision to dim light in a process dependent on the presence of enough visual purple, which is formed by vitamin A with a protein. Visual purple is reversibly broken down in bright light to retinene, which in turn is reconverted to vitamin A. This continuous process of breakdown and regeneration is not completely a reversible process, since there is some loss of vitamin A which must be replaced. If it is not replaced, the formation of visual purple fails and night blindness results. The author discusses the progress of the disease, pointing out that vision is impaired from the time corneal keratinization and clouding begin and that progression of the disease is often followed by secondary infection and loss of the eye. Following treatment the eyes return to normal unless the damage has passed beyond the reversible stage and scars are left.

The Action of ACTH and Cortisone on Experimental Ocular Inflammation, A. C. Woods and R. M. Wood, *Bulletin of the Johns Hopkins Hospital*,

November, 1950, Vol. 87, No. 5, pp. 482-504.

The authors list in summary the following points, based on their study of ACTH and cortisone in ocular inflammation:

1. Cortisone and ACTH injected parenterally have a profound effect on the inflammatory phase of the hypersensitive reaction, blocking the inflammation and exudation which occur in the ocular protein anaphylactic reaction, the ophthalmic reaction secondary to bacterial allergy, and the focal reaction in tuberculous eyes.

2. Cortisone and ACTH block effectively the inflammatory reaction in the eye produced by glycerin and jequirity infusion.

3. Cortisone injected locally in the anterior chamber has an immediate but temporary effect in blocking the inflammatory phase of the protein anaphylactic reaction in the eye, and the inflammatory reaction secondary to the anterior chamber injection of glycerin and jequirity.

4. The accumulated clinical and experimental evidence of the effect of cortisone on ocular inflammation suggests that its effect may be due to a direct action on the local mesenchymal tissue.

The Ocular Findings of Intracranial Tumor, A Study of 358 Cases, M. A. Petrohelos and J. W. Henderson, *Transactions, American Academy of Ophthalmology and Otolaryngology*, November-December, 1950, pp. 89-98.

Among the ocular findings present in a series of 358 cases of intracranial tumor were the following: the incidence of papilledema was 59.5 per cent; optic atrophy was found in 12

per cent; abnormal findings were present in slightly less than half the cases where the visual fields were examined; the prior assertion that pupillary changes are of little localizing value was supported by the present study; defects of conjugate movement occurred in 5.6 per cent of the cases; nystagmus was present in 10.9 per cent of the series; and extraocular muscle palsies were found in 13.4 per cent of the cases.

Superficial Punctate Keratitis, P. Thygeson, *The Journal of the American Medical Association*, December 30, 1950, Vol. 144, No. 18, pp. 1544-1549.

Confusion in the application of the term, superficial punctate keratitis, has led the author to propose that it be reserved for the one distinct clinical entity it so aptly describes. This entity is an epithelial keratitis (inflammation of the cornea) of long duration which is always bilateral, is associated with minimal conjunctival symptoms, runs a benign course and is probably caused by a virus. In the author's experience 11 different types of epithelial keratitis have appeared to be differentiable from superficial punctate keratitis on clinical and etiological grounds. He lists and discusses each of these separately.

Diagnosis of Abnormal Retinal Correspondence, A. Schlossman, *The Eye, Ear, Nose & Throat Monthly*, January, 1951, Vol. XXX, No. 1, pp. 25-28.

The author describes two types of tests for measuring abnormal retinal correspondence, a condition found in concomitant strabismus. He states that the prognosis for recovery of binocular function is much worse if ab-

normal retinal correspondence is present than it is when the retinal correspondence is normal and that, in general, patients with abnormal retinal correspondence only some of the time have a better prognosis than those who have it all of the time.

Technique of Sphenopalatine Ganglion Therapy for Chorioretinitis, S. L. Ruskin, *The Eye, Ear, Nose & Throat Monthly*, January, 1951, Vol. XXX, No. 1, pp. 28-31.

Dr. Ruskin offers a new approach to the problem of treating chorioretinitis (inflammation of the choroid and retina). He describes the technique of treatment of the sphenopalatine ganglion and indicates that chorioretinitis is amenable to treatment by anesthetization of the sphenopalatine ganglion, supplemented by instillation of solutions of procaine penicillin, 3,000 to 5,000 units per cc.

Nematode Endophthalmitis, H. C. Wilder, *Transactions, American Academy of Ophthalmology and Otolaryngology*, November-December, 1950, pp. 99-109.

This disease is an inflammation of the internal tissues of the eyeball, caused by roundworms. The author studied 46 cases which had been diagnosed as pseudoglioma (resembling tumor of the retina), Coats's disease (retinitis exudativa), and endophthalmitis. The patients were with few exceptions children, the greatest number coming from the southeastern United States. The finding of intraocular larvae by serial sectioning and the identification of the specific pathologic reaction that they evoke have led to the conclusion that nematodes play an important and hitherto unrecognized

nized rôle in blindness in children, and particularly in the production of pseudoglioma and Coats's disease in the United States.

Preliminary Notes on the Treatment of Trachoma with Chloromycetin, F. Magnol, *Archives d'Ophthalmologie*, Paris, 1950, Vol. 10, p. 636.

After finding that chloromycetin powder was absolutely harmless on the conjunctiva of the rabbit, Magnol tried it in 45 Moroccan patients with trachoma.

The powder, when applied lightly and evenly over the conjunctiva, dissolved in the tears. However, if too much were applied, insoluble lumps appeared. After application, the patient kept the lids closed for ten minutes. Applications were made twice daily.

Although the results were negative in old chronic trachoma except when accompanied by energetic scraping of the granulations, Magnol felt that in earlier cases the condition was arrested. In two patients ulcers healed in four days. He feels it is too soon to render a definite judgment, but the encouraging results warrant further use of the powder. Trial of the effect of chloromycetin by mouth remains to be done.

Aureomycin in Ophthalmology, D. Ainslie, *The British Journal of Ophthalmology*, November, 1950, Vol. 34, No. 11, pp. 675-680.

Among the patients treated with aureomycin were six with active trachoma, all of whom showed pannus, follicles and scarring. In four cases,

immediate improvement occurred after local treatment with aureomycin; in one other case there was considerable improvement after systemic administration of aureomycin.

Hyaluronidase in Ocular Anesthesia, L. Venco, *Rass. Ital. d'Ottal.*, 1950, Vol. XIX, Nos. 9-10, p. 317.

A review of the experiments by various authors using testicular extract in combination with local anesthetics is recorded. The muco-enzyme hyaluronidase is reported to increase the effectivity of miotics and mydriatics, increase the viscosity of the vitreous, and in general, enhance the action of novocain in the tissues. Venco emphasizes the advantage of hyaluronidase in retrobulbar use in operations upon the globe, more especially in the safety of the intracapsular extraction of cataract.

EUGENE M. BLAKE, M.D.

The Importance of Retinal Hemorrhages in the Diagnosis of Early Leukemia, G. Cordello, *Rass. Ital. d'Ottal.*, 1950, Vol. XIX, Nos. 9-10, p. 384.

Emphasis is made of the fact that retinal hemorrhages may precede demonstrable changes in the blood picture by a considerable time, in one instance reported by two years. Two patients are described where this was true; in one instance an acute hemoblastic leukemia and in the other a chronic lymphatic leukemia were diagnosed. The retinal bleeding is ascribed to an initial alteration of the pericapillary reticulo-histiocyte tissue.

EUGENE M. BLAKE, M.D.

Book Reviews

EYES AND INDUSTRY. Hedwig S. Kuhn, M.D. St. Louis: The C. V. Mosby Company, 1950, Second Edition, 378 p., Ill.

Dr. Hedwig S. Kuhn has done both ophthalmology and industry a great service in the revision of her authoritative *Industrial Ophthalmology*, published in 1944, bringing it completely up to date. With the expansion of American industrial plants during and since World War II, and with the increase in the number of industrial jobs requiring skilled workmen with good vision, this edition should be of even greater interest than the first. There are many potentially dangerous jobs in industry, many requiring the best possible vision, and under national mobilization there undoubtedly will be a shortage of workmen with good vision to fill these jobs unless forward-looking, well-grounded industrial eye programs, as described by Dr. Kuhn, are inaugurated to make the best possible use of the workers' vision.

All of the various kinds of visual testing in industry, together with techniques and a description of methods of analyzing jobs in relation to their visual factors, are covered in this volume. Management will be particularly interested in the discussion of the relation of visual skills to increased production and reduction of wastage.

Albert C. Snell, M.D., has written not only a foreword but also an excellent chapter on handling eye injuries caused by solid bodies. This includes

not only a description of types of injuries by industry, and first aid in the plant, but also a discussion of medical and surgical aspects of the care of such injuries.

In the appendix are included the industrial eyesight appraisal form for plants published by the National Society for the Prevention of Blindness, and a discussion of its Wise Owl Club eye-safety incentive program by which men whose eyesight has been saved by wearing proper protective devices are honored and made fellow workers in the eye-care movement.

There is also a timely discussion of how the blind can be employed in industry, and Dr. Kuhn emphasizes that the initial steps toward rehabilitation should begin in the ophthalmologist's office just as soon as it has been determined that the patient faces a sightless life.

Because of Dr. Kuhn's approach to the problem, and her broad experience in a wide range of industry in the Calumet area and elsewhere, this book should be of great interest to all interested in prevention of blindness and the best utilization of sight.

CLINICAL ORTHOPTIC PROCEDURE, A REFERENCE BOOK ON CLINICAL METHODS OF ORTHOPTICS. William Smith, O.D. St. Louis: The C. V. Mosby Company, 1950, 364 p., 70 illustrations.

In spite of its comprehensive subtitle, this volume is limited in applica-

tion, for only one method of developing binocular vision is given detailed consideration. Worth-while techniques established by British and French authorities have been overlooked or disregarded. Examples of other serious omissions are found in the failure to include among diagnostic procedures such standard tests as the prism and cover test for determining the amount of ocular muscle imbalance and the Symbol E test for obtaining a measurement of the visual acuity of the preschool child.

On the other hand, the initial chapter, a historical review of orthoptics, numerous quotations and footnotes throughout the entire text and an appended bibliography attest to the fact that the author, an instructor in the Massachusetts School of Optometry, has read widely in the fields of orthoptic and allied literature, both medical and optometric. He appreciates that not all cases of squint can be cured solely by orthoptic measures. Where surgery is necessary, he is wise in advocating both pre- and post-operative treatments.

For the infant squinter, such pre-orthoptic care as "(1) refraction and prescription of correction if such is needed; (2) occlusion of the nonsquinting eye, if the defect is monolateral for long periods of time" is advocated, with supervised treatments as soon as the child can cooperate satisfactorily.

In the presence of an amblyopia ex anopsia, Doctor Smith emphasizes the necessity for complete, constant occlusion of the better eye and the assignment of specific tasks requiring critical vision of the amblyopic eye. Furthermore, for the development of monocular foveal fixation he has incorporated in Part One of his Orthoptic

Procedure some original and worthwhile material involving eye-hand coordinations.

Doctor Smith's training program which begins with daily—if possible—sessions of one hour each is divided into two parts, outlined as follows:

"Part One deals with the various steps necessary for the development of the unocular and binocular visual and perceptual functions. These include fixation, proprioception, projection (spatial localization or direction), association, attention, span of recognition, orientation, visual acuity, and all other functions necessary for the normal performance of visual perception.

"Part Two deals with the teaching and development of the various steps necessary for the performance of normal binocular coordination. These include monocular and binocular perception, innervational calisthenics, retinal rivalry, superimposition, fusion, bifoveal and stereoscopic vision, and all the other factors necessary for the retention of single binocularity."

Specific instructions are included for the various steps in both parts. Except for the fact that heterophorias may require only the steps of Part Two, they are invariable, regardless of the direction or extent of the deviation.

Among the procedures described, that for developing superimposition and fusion warrants some detailed consideration here. The instrument, preferably one with an automatic flashing device such as the tel-eye trainer, the stereo-orthopter or the rotoscope, is adjusted for optical infinity with the target holders placed at the "O," or orthophoric, position. Targets, first grade if superimposition, second grade if fusion is to be induced, are exposed alternately and then simul-

taneously in rhythmic succession, so that they are seen first by one eye, then the other, and then both together. The author maintains that "setting of target holder and the targets at their respective infinity, orthophoria position tends to stimulate constant unocular and binocular foveal fixation. This helps to condition the two eyes eventually to see simultaneously and bifoveally."

It is difficult to understand how this procedure can be effective in the presence of a squint of even moderate deviation, or in the presence of an anomalous retinal correspondence. Rather, it would seem to this reviewer that binocular stimulation, though momentary, would tend to reinforce such a correspondence.

Although there are references in the text to the importance of developing normal retinal correspondence in patients who do not have it, no specific techniques for so doing are indicated and one is at a loss to know how this could be accomplished.

Detailed chapters on the various types of ocular motor anomalies follow the exposition of the author's basic procedure. In addition, there is a chapter on anomalies of accommodation and one in which those of reading are dealt with briefly. Illustrative case histories are included throughout, while others are compiled in a seventy-four-page appendix.

Listed and illustrated in the final chapter, with a condensed description of the functions of each, are an extensive number of orthoptic instruments and accessories currently in use. Though a complete inventory would doubtless be cumbersome and impractical, there are here, as elsewhere, significant omissions, and one feels

that mention should have been made, among others, of the Remy separator, the diplosopes, and the Pigeon-Cantonnet stereoscope.

ELIZABETH K. STARK
New York, N. Y.

LES UVEITES HYPERTENSIVES. Marcel Kalt. Paris: Masson et Cie., 1949, 385 p. Ill.

The translation of the title of this volume is "uveitis with glaucoma." This distinction is important since the author makes a point of separating the glaucomas associated with uveitis into two groups: (1) those that are concomitant with the uveitis, which he calls the true hypertensive uveitis; and (2) those that are sequels of the adhesions following the inflammatory processes of uveitis, which he considers purely mechanical. The book concerns itself with a very detailed study of the first of these groups. In passing, the author also speaks of a false hypertensive uveitis; that is, the primary glaucoma which is superimposed upon a true iridocyclitis.

The book is one of the most complete studies that has been published in recent years. It is up to date and discusses all the recent advances made in the study of glaucoma. The author discusses gonioscopy, aqueous veins, the fluorescein studies of Amsler and Goldman, the cytological and chemical studies of the anterior chamber fluid of Verrey. An excellent chapter is included on the surgery of hypertensive uveitis, with good illustrations and descriptions.

There are chapters on the symptomatology and differential diagnosis of uveitis with increased tension. The author has an excellent discussion of

the etiology of uveitis. One chapter is devoted to the pathogenesis of hypertensive uveitis. The discussion of the medical treatment is frequently very illuminating.

Some of the conclusions drawn by the author are as follows:

1. Hypertensive uveitis is a syndrome in which hypertension accompanies an iridocyclitis.
2. The differential diagnosis between hypertensive uveitis and a primary glaucoma with superimposed uveitis is not always easy.
3. The etiology of hypertensive uveitis remains a mystery. It is possible that the presence of reticulo-endothelial cells, which are abundant at the base of the ciliary and iris, explains the allergic hypersensitivity of the uveal tract.
4. The author raises an interesting question—why do some patients develop a hypertensive uveitis? He discusses this question but comes only to some therapeutic conclusions.
5. The medical therapeutic approach includes a discussion of the use of miotics as well as mydriatics in the treatment of secondary glaucoma. The author also discusses the use of retrobulbar injections of 40 per cent alcohol as a treatment.
6. The surgical treatment of acute secondary glaucoma is discussed and the use of iridencleisis ab externo is advised. The author also advises this operation for the chronic cases.

This book is a very valuable monograph and covers the subject very adequately. In a different form of

organization and in English translation it would be extremely desirable.

BERNARD KRONENBERG, M.D.
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PERSONAL HYGIENE APPLIED. Jesse Feiring Williams, M.D., Sc.D. Philadelphia: W. B. Saunders Co., 1950, Ninth Edition, 471 p.

PERSONAL AND COMMUNITY HYGIENE APPLIED. Jesse Feiring Williams, M.D., Sc.D., and Floyd Gage Wetherill, M.A., M.D. Philadelphia: W. B. Saunders Co., 1950, 610 p.

Those who have had any contact with college health programs know that *Personal Hygiene Applied*, by Dr. Jesse Feiring Williams, is one of the most widely used texts in this field. The fact that it has recently appeared in its ninth edition indicates the continued and extensive professional demand for the material contained within its pages. Therefore, the importance of accuracy and up-to-dateness of scientific and statistical information in such a book cannot be overestimated. Unfortunately, in the ten pages devoted to the discussion of eyes and vision, there are several inaccurate statements which, it is to be hoped, will be corrected in future editions.

Personal and Community Hygiene Applied, by Williams and Wetherill, duplicates the contents of the former text and seven chapters on community health have been added. This new section contains recommendations on lighting which are not in accord with the authoritative information contained in *American Standard Practice for School Lighting*.

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INDUSTRIAL ACCIDENT PREVENTION. A Scientific Approach. H. W. Heinrich. New York: McGraw-Hill Book Co., Inc., 1950, 3rd Edition, 470 p. Ill.

Industrial Accident Prevention has been published in two previous editions, 1931 and 1941. Throughout these 20 years it has served as a standard textbook and reference in both the training of new men and as a dependable guide in all phases of safety engineering. This new edition will be regarded with considerable interest, and should be welcomed again by those using it as the most complete available source of information on fundamental and standard practices.

Each revision has kept pace with the changes in industrial problems and accident prevention techniques. However, the basic philosophy and principles as presented in the original edition have been confirmed, as the author says, "through time and application"; and are retained and strengthened in the present edition. Considerable new material is added in the principal sections which more or less follow the pattern of the original book. Such changes have clarified and improved presentations of several points.

Many chapters will be found to have new interest. Chapter 3 on safety organization, and chapters 4 and 5 on fact finding and accident analysis have been revised and contain additional elements for consideration. New techniques for corrective action are offered in chapter 7, and in others fresh material lends added value to the work.

New chapters include Motor Vehicle Fleets, Formula for Supervision, a

Short Form Safety Course, and Personal Protective Devices. The last mentioned, discussed in chapter 10, is of major interest to REVIEW readers. In combination with chapter 11 on Illumination, it presents a fair recognition of industrial vision problems. Protective equipment is discussed from the viewpoint of guarding the individual against exposures to all parts of the body, including the eyes, and eye protection is well emphasized. As Mr. Heinrich says, "saving eyesight has long been an important part of industrial accident prevention, but the fact that there are more than 300,000 lost-time eye injuries in industry each year attests to the fact that goggles are not widely used enough." Emphasis is placed on the engineering nature of applying corrective devices. Protecting the worker himself with such equipment is a form of guarding, although it is pointed out that the operation or process should be first analyzed to eliminate hazardous materials or conditions.

Although chapter 10 is concerned with accidents and injuries to the eye, it is only in the chapter on Illumination that other phases of sight conservation and utilization are considered. This may be reasonable since, after all, the book is primarily a work on "accident prevention"; but in modern practice we are becoming more and more alert to related factors affecting the personal efficiency of the employee. Productive ability, quality of output, accident experience and general job performance are all thought to be affected by visual capabilities of the worker and visibility of the task.

In chapter 11, references are also made to other important aspects of

industrial vision such as color, amount and type of illumination, glare, contrast, etc. Some authorities have estimated that as much as 25 per cent of all industrial accidents involve vision conditions inherent in the man or his surroundings. In view of these facts, more thorough treatment of industrial visual efficiency would be of considerable benefit in this kind of book.

Some elements of the problem are considered generally in other chapters, such as in number 4, Fact Finding under Job Analysis, in which it is shown how a complete understanding of the physical requirements of any given occupation will assist, through proper selection and placement procedures, in eliminating the basic causes of accidents. Presumably, persons unfit for certain work because of physical limitations will not be improperly assigned. It would be helpful and effective if all of the sections having any bearing on visual efficiency were integrated into an individual presentation in a planned arrangement to point up the problem.

ROBERT S. KRUEGER
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JOURNEY INTO LIGHT. Ishbel Ross.
New York: Appleton - Century - Crofts, Inc., 1951, 390 p.

Covering the centuries of recorded time, starting with Ptah-Hotep in 2650 B.C., Miss Ross describes what both blind and sighted educators and workers have done to hold back the curtain of darkness and lighten the shadows. Among outstanding leaders today, Miss Ross describes the work of Col. E. A. Baker, Robert Barnett, Conrad Berens, M.D., Sir Ian Fraser and Helen Keller. The lives of a host of educators, scientists, poets, philosophers and minstrels are presented in relation to efforts to help the blind, keep them self-reliant, and even more important, to provide the sighted with an understanding that with the loss of sight one does not necessarily and automatically lose his hearing, intelligence and power of locomotion.

Because of the nature of the book, there is brief mention of efforts to fight blindness through research, education and preventive services. The work will be read with interest by all workers for the blind. The author has presented their work, as Paul de Kruif did the achievements of medical scientists, in an engaging and dramatic style.